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The Council think it proper to state that the authors of the several communications are alone responsible for the statements, reasonings, and opinions contained in their respective papers.

20, HANOVER SQUARE, W.;
October, 1894.

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1879 BINDON, WM. JOHN VEREKER, M.D.

1883 BISS, CECIL YATES, M.D., 135, Harley Street, W. *Trans.* 1.

1889 BISSHOPP, FRANCIS ROBERT BRYANT, M.A., M.B., B.S., Belle Vue, Mount Pleasant, Tunbridge Wells.

1892 BLAXALL, FRANK RICHARDSON, M.D., Rendlesham, Hornsey Lane, N.

1893 BOND, JAMES WILLIAM, M.D., 26, Harley Street, W. *C.S.* 1.

ELECTED

1888 BOSTOCK, ROBERT ASHTON, 73, Onslow Gardens, Brompton.

1883 BOWLBY, ANTHONY A., 24, Manchester Square, W. (C. 1891–3.) *Trans.* 2, *C.S.* 2.

1883 †BOWLES, ROBERT LEAMON, M.D., 16, Upper Brook Street, W. (C. 1890–1.)

1889 BOYD, STANLEY, M.B., 134, Harley Street, W. *Trans.* 1, *C.S.* 3.

1890 BRADFORD, JOHN ROSE, M.D., 52, Upper Berkeley Street, W.

1878 BRIDGES, ROBERT, M.B., M.A., The Manor House, Yattendon, Berkshire. *Trans.* 1.

1868 BRIGHT, GEORGE CHARLES, M.D., Cannes, Alpes Maritimes, France.

1868 †BRIGHT, JOHN MEABURN, M.D., Forest Hill, S.E.

O.M. BRISTOWE, JOHN S., M.D., F.R.S., 13, Old Burlington Street, W. (C. 1869–70, V.P. 1879–80.) *Trans.* 5.

O.M. BROADBENT, Sir WILLIAM HENRY, Bart., M.D., 84, Brook Street, W. (C. 1871–3, V.P. 1881–3, P. 1887–8.) *Trans.* 17.

1887 BROCK, J. H. E., M.D., B.S., 115, Adelaide Road, N.W.

O.M. BRODHURST, BERNARD EDWARD, 20, Grosvenor Street, W. *Trans.* 2, *C.S.* 1.

1890 BROWN, WALTER HENRY, 19, Queen Street, Leeds. *Trans.* 2.

1876 BROWNE, GEORGE BUCKSTON, 80, Wimpole Street, W. (C. 1891–3.) *Trans.* 3.

1893 BROWNE, JAMES WILLIAM, M.B., 7, Norland Place, Holland Park, W.

1887 BROWNE, OSWALD AUCHINLECK, M.A., M.B., 43, Bedford Square, W.C.

1883 BRUCE, JOHN MITCHELL, M.D., 70, Harley Street, W.

1893 BRYANT, JOHN HENRY, M.D., Guy's Hospital, S.E.

O.M. BRYANT, THOMAS, 65, Grosvenor Street, W. (C. 1872, V.P. 1876–7, P. 1885–6.) *Trans.* 8.

O.M. BUCHANAN, SIR GEORGE, M.D., LL.D. Ed., F.R.S., 27, Woburn Square, W.C. (C. 1877, V.P. 1892–4.)

1890 BUCKLAND, FRANCIS O., B.A., M.B., C.M., 6, Lower Sloane Street, S.W. *Trans.* 1.

1891 BURGHARD, FREDERIC FRANÇOIS, M.D., M.S., 46, Weymouth Street, W.

1881 BURNET, ROBERT WILLIAM, M.D., 6, Upp. Wimpole Street, W. *Trans.* 1.

1879 BURTON, WILLIAM EDWARD, 24, Wimpole Street, W.

1887 BUTLER-SMYTHE, ALBERT CHARLES, 76, Brook Street, W. *Trans.* 1.

1881 BUTLIN, HENRY TRENTHAM, 82, Harley Street, W. (C. 1887–9.) *Trans.* 7.

1871 BUTT, WILLIAM F.

1884 BUXTON, DUDLEY WILMOT, M.D., B.S., 82, Mortimer Street, W.

O.M. BUZZARD, THOMAS, M.D., 74, Grosvenor Street, W. (S. 1870–2, C. 1873–6, V.P. 1880–1.) *Trans.* 14, *C.S.* 1.

1891 CADDY, ARNOLD, 2/2, Harington Street, Calcutta.

1886 CAHILL, JOHN, 12, Seville Street, Lowndes Square, S.W.

1893 CALEY, HENRY ALBERT, M.D., 24, Upper Berkeley Street, W.

1890 CALVERT, JAMES, M.D., 36, Queen Anne Street, W. *Trans.* 1 *C.S.* 1.

ELECTED

1893 CAMPBELL, HARRY, M.D., 20, Devonshire Street, W.

1891 CANNEY, H. E. LEIGH, M.B., 122, Brompton Road, S.W.

1891 CARLESS, ALBERT, M.S., M.B., 10, Welbeck Street, W.

1890 CARR, JOHN WALTER, M.D., 40, Bloomsbury Square, W.C. *Trans.* 1, *C.S.* 1.

1889 CARTE, WILLIAM ALEXANDER, M.D., M.Ch., Surgeon-Major, Grenadier Guards' Hospital, Rochester Row, S.W.

1869 CARTER, ROBERT BRUDENELL, 27, Queen Anne Street, W. (C. 1873–6, V.P. 1879–81.) *Trans.* 8.

1885 CATON, RICHARD, M.D., 86, Rodney Street, Liverpool. *Trans.* 2.

1868 CAVAFY, JOHN, M.D., 2, Upper Berkeley Street, W. (C. 1881–3.) *Trans.* 4.

O.M. CAYLEY, WILLIAM, M.D., 27, Wimpole Street, W. (C. 1874–5, S. 1876–8, C. 1879–80, V.P. 1885–6.) *Trans.* 7, *C.S.* 1.

1890 CHAPMAN, CHARLES WILLIAM, M.D., 21, Weymouth Street, W.

1884 CHAPMAN, PAUL M., M.D., 1, St. John Street, Hereford. *C.S.* 1.

1893 CHARSLEY, ROBERT STEPHEN, "The Barn," Slough.

1885 CHEYNE, W. WATSON, M.B., C.M., 75, Harley Street, W. (C. 1894.) *C.S.* 1.

1873 CHISHOLM, EDWIN, M.D., Abergeldie, Ashfield, near Sydney, New South Wales.

O.M. CHURCH, WILLIAM SELBY, M.D., 130, Harley Street, W. (C. 1874–6.)

1873 CHURTON, THOMAS, M.D., 35, Park Square, Leeds. (C. 1889–91.) *Trans.* 3.

O.M. CLAPTON, EDWARD, M.D., 22, St. Thomas's Street, Southwark, S.E. (C. 1872–4.) *Trans.* 1.

1874 CLARK, ANDREW, 71, Harley Street, W. *Trans.* 1.

1887 CLARK, FRANCIS WILLIAM, The Dispensary, Newcastle-on-Tyne.

1885 †CLARKE, J. MICHELL, M.B., 28, Pembroke Road, Clifton, Bristol.

1885 CLARKE, WILLIAM BRUCE, M.B., 46, Harley Street, W. (C. 1894.) *Trans.* 2, *C.S.* 1.

1877 †CLAY, ROBERT HOGARTH, M.D., 4, Windsor Villas, Plymouth.

1887 CLEMOW, ARTHUR HENRY WEISS, M.D., C.M., 1, Comeragh Road, W. *C.S.* 1.

1877 *CLUTTON, HENRY HUGH, M.A., 2, Portland Place, W. (C. 1885–7.) *Trans.* 10, *C.S.* 2.

1893 COLE, ROBERT HENRY, M.B., Moorcroft, Hillingdon, Middlesex.

1882 COLLIER, HERBERT, M.D., The Grange, Gorleston, Great Yarmouth, Norfolk.

1882 COLQUHOUN, DANIEL, M.D., Dunedin, New Zealand.

1872 COOKE, THOMAS, 40, Brunswick Square, W.C.

1868 COOPER, FRANK W.

1880 COTTLE, WYNDHAM, M.D., 3, Savile Row, W.

1892 COTTERELL, EDWARD, 5, West Halkin Street, S.W.

O.M. COUPER, JOHN, 80, Grosvenor Street, W. (C. 1874.)

ELECTED

1875 COUPLAND, SIDNEY, M.D. (C.), 16, Queen Anne Street, W. (S. 1882–4, C. 1885–7.) *Trans.* 5, *C.S.* 2.

1886 COUSINS, JOHN WARD, M.D., Riversdale, Kent Road, Southsea. *Trans.* 1.

1882 COXWELL, C. F., M.B. *Trans.* 2.

1879 CRIPPS, WILLIAM HARRISON, 2, Stratford Place, W. (C. 1886–8.) *Trans.* 3.

1872 CRITCHETT, G. ANDERSON, 21, Harley Street, W.

1877 CROCKER, HENRY RADCLIFFE, M.D., 121, Harley Street, W. (C. 1884–5.) *Trans.* 14.

O.M. CROFT, JOHN, 3, Mansfield Street, W. (C. 1870–2, V.P. 1882–4.) *Trans.* 12.

1890 CROWLE, THOMAS HENRY RICKARD, 3, Campden Hill Road, W.

1893 CURTIS, HENRY JONES, M.D., B.S., University College Hospital, W.C.

1872 DALBY, Sir WILLIAM BARTLETT, M.B., 18, Savile Row, W. (C. 1879–81.) *Trans.* 4.

1882 DALLAWAY, J. W. DENNIS, 5, Duchess Street, W.

1891 DARDENNE, HENRI, M.B., French Hospital, Shaftesbury Avenue, W.C

1893 DAUBER, JOHN HENRY, 20, Davies Street, W.

1886 DAVIES, ARTHUR T., M.D., 23, Finsbury Square, E.C. *C.S.* 10.

1879 DAVIES-COLLEY, J. NEVILLE C., M.B., M.C., 36, Harley Street, W. (C. 1885–6.) *Trans.* 7, *C.S.* 1.

1879 †DAVY, HENRY, M.D., 29, Southernhay, Exeter.

1868 DAY, WILLIAM HENRY, M.D., 10, Manchester Square, W. (C. 1892–4.) *Trans.* 5.

1889 DEAN, HENRY PERCY, 84, Wimpole Street, W.

1879 †DENNIS, FREDERIC S., M.D., 542, Madison Avenue, New York, U.S.

1875 DENT, CLINTON T.. 61, Brook Street, W. (C. 1884–6.) *Trans.* 2.

O.M. DICKINSON, WILLIAM HOWSHIP, M.D., 9, Chesterfield Street, W. (C. 1874–5, V.P. 1888–9.) *Trans.* 2.

1891 DICKINSON, WILLIAM LEE, M.D., 9, Chesterfield Street, W. *Trans.* 3.

1871 DIVER, EBENEZER, M.D., Kenley, Caterham Valley, Surrey. (C. 1890–2.)

O.M. DOWN, JOHN LANGDON H., M.D., 81, Harley Street, W. (C. 1870–2.) *Trans.* 1.

1868 DRAGE, CHARLES, M.D., Hatfield, Herts.

1879 DREWITT, F. G. DAWTREY, M.D., 2, Manchester Square, W. (C. 1886–8.) *Trans.* 2.

O.M. DUCKWORTH, Sir DYCE, M.D., LL.D. (*President*), 11, Grafton Street, Bond Street, W. (C. 1875–7, V.P. 1887–8, P. 1891–2.) *Trans.* 18, *C.S.* 5.

O.M. DUFFIN, ALFRED B., M.D., 18, Devonshire Street, W. (C. 1872–4, V.P. 1891–3.) *Trans.* 6.

1884 DUKE, EDGAR, 30, Pevensey Road, St. Leonard's-on-Sea.

1869 DUKE, OLLIVER THOMAS, M.B., Surgeon, Bengal Army, India.

ELECTED

1889 DUNCAN, JOHN, M.D., St. Petersburg.

1889 DUNN, LOUIS ALBERT, M.S., 10, St. Thomas's Street, S.E. *C.S.* 1.

O.M. DURHAM, ARTHUR EDWARD, 82, Brook Street, W. (C. 1867–9, V.P. 1884–5.) *Trans.* 5.

1884 EDMUNDS, WALTER, M.C., 75, Lambeth Palace Road, S.E.

1882 EMOND, EMILE, M.D., 113, Boulevard Beaumarchais, Paris.

O.M. ERICHSEN, JOHN E., LL.D., F.R.S., 6, Cavendish Place, W. (V.P. 1869–71.)

1868 EVANS, JULIAN, M.B., 123, Finborough Road, Redclyffe Square, S.W.

1893 EVANS, WILLMOTT H., 6, Gower Street, W.C.

1888 *EVE, FREDERIC S., 125, Harley Street, Cavendish Square, W. *Trans.* 1, *C.S.* 1.

1877 EWART, WILLIAM, M.D., 33, Curzon Street, W. (C. 1884–6.) *C.S.* 1.

1893 EZARD, EDWARD HENRY, M.D., B.S., 220, Lewisham High Road, S.E.

1868 †FAIRBANK, FREDERICK ROYSTON, M.D., 39, Warrior Square, St. Leonards-on-Sea. *Trans.* 1.

1889 FARDON, EDWARD ASHBY, Middlesex Hospital.

1885 FENN, EDWARD LIVEING, M.D., Grey Friars, Colchester.

1887 FENWICK, E. HURRY, 14, Savile Row, W. *Trans.* 1, *C.S.* 1.

1872 FENWICK, J. C. J., M.D., 25, North Road, Durham.

1893 FENWICK, WILLIAM SOLTAU, M.D., 10, Devonshire Street, W.

1878 FIELD, GEORGE P., 34, Wimpole Street, W.

1876 FINLAY, DAVID WHITE, M.D., 2, Queen's Terrace, Aberdeen. (C. 1885–7, S. 1891.) *Trans.* 6.

1885 FITZ-PATRICK, THOMAS, M.D., 30, Sussex Gardens, Hyde Park, W.

1889 FLEMMING, PERCY, M.D., 88, Gower Street, W.C. *C.S.* 1.

1894 FLETCHER, HERBERT MORLEY, M.D., 98, Harley Street, W.

1878 *FONMARTIN, HENRY DE, M.D., 26, Newberry Terrace, Lower Bullar Street, Nichol's Town, Southampton.

1889 FORBES, DANIEL MACKAY, Shoreditch Infirmary, 204, Hoxton Street, N.

1890 FORMAN, E. BAXTER, M.D., 11, Bramham Gardens, S. Kensington, S.W.

1890 FOSTER, MICHAEL G., M.B., M.A., Villa San Giovanni, Alassio, Italy.

1881 FOWLER, JAMES KINGSTON, M.D., 35, Clarges Street, W. (C. 1887–9.) *Trans.* 4, *C.S.* 5.

1886 FOX, R. HINGSTON, M.D., 23, Finsbury Square, E.C.

1878 FOX, THOMAS COLCOTT, M.B., 14, Harley Street, W. (C. 1888–90.) *Trans.* 6, *C.S.* 1.

1893 FOXWELL, ARTHUR, M.D., 7, Newhall Street, Birmingham.

1887 FREEMAN, HENRY WILLIAM, 24, Circus, Bath.

1890 FULLER, HENRY ROXBURGH, M.D., 45, Curzon Street, W.

1891 FYFFE, W. KINGTON, M.B., B.C., 19, Duke Street, Manchester Square, W. *Trans.* 1.

1888 GAGE-BROWN, CHARLES HERBERT, M.D., 74, Cadogan Place, S.W.

ELECTED

1887 GARROD, ARCHIBALD EDWARD, M.A., M.D., 9, Chandos Street, W.

1879 GARSTANG, THOMAS WALTER HARROPP, The Heath, Knutsford, Cheshire.

1885 GIBBONS, ROBERT ALEXANDER, M.D., 29, Cadogan Place, S.W. *Trans.* 1.

1893 GIBBS, CHARLES, Charing Cross Hospital.

1868 GLOVER, JAMES GREY, M.D., 25, Highbury Place, N. (C. 1878–80, V.P. 1892–4.) *Trans.* 2.

1893 GLOVER, LEWIS G., M.B., B.C., Merton Lodge, West Hill, Highgate, N.

1882 GODDARD, EUGENE, M.D., 106, Highbury New Park, N.

1875 GODLEE, RICKMAN JOHN, M.S., 19, Wimpole Street, W. (C. 1882–3, 1887–9, S. 1884–6.) *Trans.* 12, *C.S.* 4.

1882 GOLDIE, ROBERT WILLIAM, Medical Superintendent, Poplar and Stepney Sick Asylum, Devon's Road, Bromley.

1878 GOLDING-BIRD, C. H., M.B., 12, Queen Anne Street, W. (C. 1887–9.) *Trans.* 10, *C.S.* 1.

1894 GOODALL, EDWARD WILBERFORCE, M.D., Eastern Hospital, Homerton.

1875 GOODHART, JAMES FREDERIC, M.D., 25, Weymouth Street, W. (C. 1880–2.) *Trans.* 13, *C.S.* 2.

1891 GOODMAN, ROGER NEVILLE, M.B., 3, Grove Crescent, Kingston-on-Thames.

1869 GOODRIDGE, HENRY FREDERICK AUGUSTUS, M.D., 10, Brock Street, Bath.

1882 GOODSALL, D. H., 17, Devonshire Place, W.

1877 GOULD, A. PEARCE, M.S. (*Hon. Secretary*), 10, Queen Anne Street, W. (C. 1885–7, S. 1892–4.) *Trans.* 11, *C.S.* 3.

1875 GOWERS, WILLIAM RICHARD, M.D., F.R.S., 50, Queen Anne Street, W. (C. 1881–2.) *Trans.* 5.

1891 GRANT, J. DUNDAS, M.D., 8, Upper Wimpole Street, W.

1868 GREEN, T. HENRY, M.D., 74, Wimpole Street, W. (C. 1877–9.) *Trans.* 2, *C.S.* 1.

1875 †GREENFIELD, WILLIAM SMITH, M.D., 7, Heriot Row, Edinburgh. (C. 1881.) *Trans.* 3.

1893 *GRIFFITH, WALTER SPENCER ANDERSON, M.D., 114, Harley Street, W.

1883 GROSS, CHARLES, M.D., M.S., 112, Westbourne Grove, W.

1887 HABERSHON, SAMUEL HERBERT, M.D., 70, Brook Street, W.

1875 HALE, C. D. B., 3, Sussex Place, W. *Trans.* 1.

1878 HALL, F. DE HAVILLAND, M.D., 47, Wimpole Street, W. (C. 1885–87.) *Trans.* 8, *C.S.* 3.

1889 HALSTEAD, GEORGE EZRA, M.D., B.S., Ramsgate.

1888 HANDFIELD-JONES, MONTAGU, M.D., 35, Cavendish Square, W.

1886 †HANDFORD, HENRY, M.D., 14, Regent Street, Nottingham. (C. 1893–4.) *Trans.* 5, *C.S.* 1.

1886 HARDIE, JAMES, M.D., 15, St. John Street, Manchester.

ELECTED

O.M. HARLEY, JOHN, M.D., F.L.S., 9, Stratford Place, W. (C. 1875.) *Trans.* 1.

1890 HARPER, JAMES, M.D., 25, Rosary Gardens, South Kensington, S.W.

1872 HARRIS, HENRY, M.D., Trengweath, Redruth, Cornwall.

1889 HARRIS, HERBERT ELWIN, M.B., The Infirmary, East Dulwich Grove, S.E. *Trans.* 1.

1881 HARRISON, CHARLES EDWARD, M.B., Grenadier Guards Hospital, Rochester Row, S.W.

1892 HARRISON, DAMER, 53, Rodney Street, Liverpool. *Trans.* 1.

1869 HAWARD, J. WARRINGTON, 16, Savile Row, W. (C. 1876–8, 1884–6, S. 1881–3, V.P. 1888.) *Trans.* 13.

1886 HAWKINS, FRANCIS HENRY, M.B., 26, Portland Place, Reading. *Trans.* 3, *C.S.* 2.

1889 HAWKINS, HERBERT PENNELL, M.B., B.S., 109, Harley Street, W. *Trans.* 1.

1890 HAWKINS-AMBLER, GEORGE ARTHUR, 162, Upper Parliament Street, Liverpool.

O.M. HEATH, CHRISTOPHER 36, Cavendish Square, W. (C. 1867–71, V.P. 1876–8, T. 1879–88, P. 1889–90.) *Trans.* 19.

1879 HENDERSON, GEORGE COURTENAY, M.D., Kingston, Jamaica, West Indies.

1882 HERON, GEORGE ALLAN, M.D., 57, Harley Street, W.

1884 HERRINGHAM, WILMOT PARKER, M.D., 13, Upper Wimpole Street, W. (C. 1894.) *Trans.* 2, *C.S.* 1.

1888 †HETHERINGTON, GEORGE HAYNES, 10, Museum Street, Ipswich.

1874 HOLDERNESS, WILLIAM BROWN, 15, Park Street, Windsor.

1868 †HOLMAN, CONSTANTINE, M.D., 26, Gloucester Place, Portman Square, W. (C. 1894.)

O.M. HOLMES, TIMOTHY, 18, Great Cumberland Place, W. (C. 1867–9, V.P. 1873–5.) *Trans.* 16.

O.M. HOLTHOUSE, CARSTEN. (C. 1870–2.) *Trans.* 8.

1878 HOOD, DONALD WILLIAM CHARLES, M.D., 43, Green Street, W. (C. 1891–3.) *Trans.* 1.

1883 HOPKINS, JOHN, Central London Sick Asylum, Cleveland Street, W. *C.S.* 1.

1884 HORSLEY, VICTOR, M.B., F.R.S., 25, Cavendish Square, W. (C. 1894.) *Trans.* 2, *C.S.* 1.

1880 *HOVELL, T. MARK, 105, Harley Street, W.

1893 HOWARD, R. J. BLISS, M.D., 31, Queen Anne Street, W.

1876 HOWSE, HENRY GREENWAY, M.S., 59, Brook Street, W. (C. 1881–3, V.P. 1890–2.) *Trans.* 3.

1894 HUDSON, CHARLES ELLIOTT LEOPOLD BARTON, 16, Harley Street, W.

O.M. HULKE, JOHN WHITAKER, F.R.S., 10, Old Burlington Street, W. (C. 1867–9, V.P. 1878–80, P. 1893–4.) *Trans.* 14.

ELECTED

O.M. HUMPHRY, SIR GEORGE MURRAY, M.D., LL.D., F.R.S., Cambridge. (V.P. 1867–70.)

1892 HUNTER, WILLIAM, M.D., 54, Harley Street, W.

O.M. HUTCHINSON, JONATHAN, F.R.S., 15, Cavendish Square, W. (C. 1867–8, V.P. 1875–6.) *Trans.* 14, *C.S.* 1.

1879 INKSON, JAMES, M.D., Brigade Surgeon, Army.

1893 IONIDES, THEODORE HENRY, 23, Second Avenue, Brighton.

1883 JACKSON, GEORGE HENRY, "St. Levan's," Upperton, Eastbourne.

O.M. JACKSON, J. HUGHLINGS, M.D., F.R.S., 3, Manchester Square, W. (C. 1872–3, V.P. 1887.) *Trans.* 2.

1877 JACOBSON, WALTER HAMILTON ACLAND, M.B., M.Ch., 66, Great Cumberland Place, W. (C. 1890–2.) *Trans.* 2.

1888 JAMISON, ARTHUR, M.D., C.M., 18, Lowndes Street, S.W.

1888 JAMES, JAMES THOMAS, M.D., 30, Harley Street, W.

1875 JESSETT, FREDERICK BOWREMAN, 1, Buckingham Palace Mansions, S.W. *Trans.* 1.

1889 JOHNSON, RAYMOND, M.B., B.S., 20, Weymouth Street, W. *Trans.* 1.

1893 JOHNSTON, G., M.B., 6, Manchester Square, W.

1878 JOHNSTON, WILLIAM, M.D., M.C., 16, Lonsdale Terrace, Upper Kent Street, Leicester.

1872 JONES, THOMAS RIDGE, M.D., 4, Chesham Place, S.W. (C. 1892–3.)

1876 JORDAN, FURNEAUX. *Trans.* 1.

1886 JULER, HENRY EDWARD, 23, Cavendish Square, W.

1878 KEETLEY, CHARLES ROBERT BELL, 56, Grosvenor Street, W. *Trans.* 2.

O.M. KELLY, CHARLES, M.D., Worthing, Sussex.

1882 KESTEVEN, WILLIAM HENRY, Hillwood, Waverley Grove, Hendon, N.W. *Trans.* 1.

1883 KIDD, PERCY, M.D., 60, Brook Street, W. (C. 1891–2.) *Trans.* 4, *C.S.* 2.

1887 †KNAGGS, R. LAWFORD, B.C., Huddersfield. *Trans.* 1.

1878 LACEY, THOMAS WARNER, 196, Burrage Road, Plumstead.

1890 LANCASTER, ERNEST LE CRONIER, M.B., B.Ch., Winchester House. Swansea, S. Wales. *Trans.* 1.

1883 LANE, WILLIAM ARBUTHNOT, M.B., M.S., 8, St. Thomas's Street, S.E. (C. 1893–4.) *Trans.* 15, *C.S.* 6.

O.M. LANGTON, JOHN, 62, Harley Street, W. (C. 1878–80, V.P. 1892–4.) *Trans.* 2.

1886 LANKESTER, HERBERT, M.D., 1, Elm Park Gardens, South Kensington, S.W.

1885 LARDER, HERBERT, Whitechapel Infirmary, Baker's Row, E. *C.S.* 1.

1893 LAWSON, ARNOLD, 12, Harley Street, W.

O.M. LAWSON, GEORGE, 12, Harley Street, W. (S. 1871–3, C. 1874–6, V.P. 1881–3.) *Trans.* 16.

1877 †LEDIARD, HENRY AMBROSE, M.D., 41, Lowther Street, Carlisle. (C. 1889.) *Trans.* 5.

ELECTED

O.M. LEE, HENRY, 9, Savile Row, W. (V.P. 1870–2.) *Trans.* 7.

1877 LEES, DAVID B., M.D., 22, Weymouth Street, W. (C. 1885.) *Trans.* 4.

1893 LENDON, EDWIN HARDING, M.B., 8, Norland Place, Holland Park, W.

1892 LEWIS, EDWARD JOHN, M.B., B.C., 87, Hamilton Terrace, N.W.

1879 LICHTENBERG, GEORGE, M.D., 47, Finsbury Square, E.C.

1890 LITTLE, JOHN FLETCHER, M.B., 32, Harley Street, W. *C.S.* 2.

1868 LITTLE, LOUIS STROMEYER, China.

1891 LITTLEWOOD, HARRY, 40, Park Square, Leeds. *Trans.* 1.

1875 LIVEING, EDWARD, M.D., 52, Queen Anne Street, W.

1872 LIVEING, ROBERT, M.D., 11, Manchester Square, W. (C. 1883–4.) *Trans.* 2.

1885 LOCKWOOD, CHARLES BARRETT, 19, Upper Berkeley Street, W. *Trans.* 2.

1876 LONGHURST, ARTHUR EDWIN TEMPLE, M.D., 4, Eaton Square, S.W. (C. 1889–91.) *Trans.* 1.

1881 LUBBOCK, MONTAGU, M.D., 19, Grosvenor Street, W.

1876 LUCAS, R. CLEMENT, M.B., B.S., 18, Finsbury Square, E.C. (C. 1883–5.) *Trans.* 9.

1879 LUNN, JOHN REUBEN, New Marylebone Infirmary, Rackham Street, Ladbroke Grove Road, W. (C. 1890–1.) *Trans.* 5, *C.S.* 8.

1893 LYS, HENRY GRABHAM, M.D., Southbrook, Suffolk Road, Bournemouth.

1889 MACBRIDE, P., M.D., 16, Chester Street, Edinburgh.

1871 MAC CORMAC, Sir WILLIAM, 13, Harley Street, W. (C. 1877–9, V.P. 1888–9.) *Trans.* 5.

1891 MACDONALD, GREVILLE, M.D., 85, Harley Street, W.

1881 MCHARDY, MALCOLM MACDONALD, 5, Savile Row, W. *Trans.* 1.

1882 MACKENZIE, FREDERIC MORELL, 29, Hans Place, S.W.

1891 MACKENZIE, HECTOR W. G., M.A., M.D., 59, Welbeck Street, W. *Trans.* 4.

1879 MACKENZIE, STEPHEN, M.D., 18, Cavendish Square, W. (C. 1884, 1888–90, S. 1885–7.) *Trans.* 9, *C.S.* 10.

1884 MACKERN, JOHN, M.B., St. German's Lodge, Shooter's Hill Road, Blackheath.

1879 MACLAGAN, THOMAS JOHN, M.D., 9, Cadogan Place, S.W. (C. 1889–91.) *Trans.* 2.

1885 MACLAREN, RODERICK, M.D., Portland Square, Carlisle. *Trans.* 1.

1879 MAGILL, JAMES, M.D., M.C., Coldstream Guards, Queen Anne's Mansions, S.W.

1885 MAGUIRE, ROBERT, M.D., 4, Seymour Street, W. *Trans.* 1.

1881 MAKINS, GEORGE HENRY, 47, Charles Street, Berkeley Square, W. (C. 1892–4.) *Trans.* 2, *C.S.* 5.

1887 MALCOLM, JOHN D., M.B., C.M., 13, Portman Street, W.

1890 MANSON, PATRICK, M.D., C.M., 21, Queen Anne Street, W.

ELECTED

1888 †MARRIOTT, HYDE, M.B., Dial House, Stockport.

1868 MARSH, F. HOWARD, 30, Bruton Street, W. (C. 1876–7, 1881–3, S. 1878–80, V.P. 1887–8.) *Trans.* 12, *C.S.* 3.

1875 MARSHALL, F. J., St. George's Hospital, S.W.

1887 MARTIN, SIDNEY, M.D., B.S., 10, Mansfield Street, W.

1888 MASON, DAVID JAMES, M.D., C.M., Maidenhead.

1892 MASTERS, JOHN ALFRED, M.D., 57, Lexham Gardens, Kensington, W.

1884 MAUDSLEY, HENRY CARR, M.D., 11, Spring Street, Melbourne, Victoria.

1892 MAUNSELL, HENRY WIDENHAM, M.D., M.A., 102, Cromwell Road, South Kensington, S.W.

1868 †MAY, EDWARD HOOPER, M.D., High Cross, Tottenham, Middlesex.

1888 MAY, WILLIAM PAGE, M.D., B.Sc., 38, Weymouth Street, W.

1888 MENZIES, J. HERBERT, 47, Earl's Court Square, S.W.

1893 MERCER, WILLIAM BRACEWELL, M.B., B.C., Royal Hospital for Diseases of the Chest, City Road, E.C.

1878 MEREDITH, WILLIAM APPLETON, C.M., 21, Manchester Square, W. (C. 1887–9.) *Trans.* 2.

1894 MICHELS, ERNST, 6, West Street, Finsbury Circus, E.C.

1873 MICKLE, WILLIAM JULIUS, M.D., Grove Hall Asylum, Bow, E.

1890 MILEY, MILES, M.A., M.B., 21, Belsize Avenue, Hampstead, N.W.

1882 MONEY, ANGEL, M.D. (C. 1888–90.) *Trans.* 3.

1874 MORGAN, JOHN HAMMOND, 68, Grosvenor Street, W. (C. 1883–5.) *Trans.* 2, *C.S.* 5.

1877 MORRIS, HENRY, M.A., M.B., 8, Cavendish Square, W. (C. 1884–6.) *Trans.* 9.

1877 MORRIS, MALCOLM ALEX., 8, Harley Street, W. (C. 1890–2.) *Trans.* 1, *C.S.* 1.

1888 MORISON, ALEXANDER, M.D., 14, Upper Berkeley Street, W. *Trans.* 2.

1885 MOTT, FREDERICK WALKER, M.D., C.M., 84, Wimpole Street, W.

1879 MOULLIN, CHARLES W. MANSELL, 69, Wimpole Street, W. (C. 1888–90.) *Trans.* 5, *C.S.* 2.

1875 MURPHY, SHIRLEY F., 41, Queen Anne Street, W. (C. 1888–90.) *C.S.* 1.

1885 MURRAY, ALEXANDER DALTON, M.B., Colombo, Ceylon.

1893 MURRAY, GEORGE REDMAYNE, M.B., 2, Saville Place, Newcastle-on-Tyne.

1883 MURRAY, HUBERT MONTAGUE, M.D., 27, Savile Row, W. (C. 1893–4.) *Trans.* 1.

1868 MYERS, ARTHUR BOWEN RICHARDS, 43, Gloucester Street, Warwick Square, S.W. (C. 1877–9.) *Trans.* 1.

1872 MYRTLE, ANDREW S., M.D., 8, Park Parade, Harrogate. (C. 1892.)

1892 NASH, WALTER GIFFORD, 31, St. Peter's, Bedford.

1875 NETTLESHIP, EDWARD, 5, Wimpole Street, W. (C. 1881–2.) *Trans.* 2.

1889 †NEWMAN, D., M.D., 18, Woodside Place, Glasgow. *Trans.* 1.

O.M. NORTON, ARTHUR TREHERN, 101, Harley Street, W. (C. 1874–6.) *Trans.* 7.

ELECTED

O.M. NUNN, THOMAS WILLIAM, 8, Stratford Place, W. (C. 1873–4.) *Trans.* 8.

1880 O'CONNOR, BERNARD, M.D., Greenhill Park, Harlesden, N.W. *Trans.* 1.

O.M. OGLE, JOHN WILLIAM, M.D., 30, Cavendish Square, W. (C. 1867–8 V.P. 1884–5.) *Trans.* 6.

1868 †OGLE, WILLIAM, M.D., 98, Friar Gate, Derby.

1883 OLIVER, GEORGE, M.D., West End Park, Harrogate. *Trans.* 1.

1887 †OLIVER, THOMAS, M.D., 7, Ellison Place, Newcastle-upon-Tyne.

1887 OPENSHAW, THOMAS HORROCKS, M.B., 16, Wimpole Street, W.

1868 OPPERT, FRANZ, M.D., 128, Leipzigerstrasse, Germany. *Trans.* 1.

1877 ORD, WILLIAM MILLER, M.D. (*Treasurer*), 37, Upper Brook Street, W. (C. 1882–4, T. 1889–93.) *Trans.* 8, *C.S.* 1.

1890 ORD, W. WALLIS, M.B., B.Ch., 2, Queen Street, Mayfair, W. *C.S.* 1.

1887 ORMEROD, JOSEPH ARDERNE, M.D., 25, Upper Wimpole Street, W.

1884 ORMSBY, LAMBERT HEPENSTAL, M.D., 4, Merrion Square West, Dublin.

1883 ORTON, GEORGE HUNT, M.B., 1A, Campden Hill Road, Kensington, W.

1877 OWEN, ISAMBARD, M.D., 40, Curzon Street, W. (C. 1888–90.) *Trans.* 1.

1888 OXLEY, ALFRED RICE, M.D., Streatham Common.

1888 PAGE, FREDERICK, M.D., 1, Saville Place, Newcastle-on-Tyne.

1875 PAGE, HERBERT W., M.C., M.B., 146, Harley Street, W. (C. 1882–4.) *Trans.* 6.

1884 PAGET, STEPHEN, 57, Wimpole Street, W. *Trans.* 5, *C.S.* 1.

1873 PARKER, ROBERT WILLIAM, 13, Welbeck Street, W. (C. 1882–4, 1890–2, S. 1887–9, V.P. 1893–4.) *Trans.* 12, *C.S.* 7.

1881 PARKER, RUSHTON, M.B., B.S., 59, Rodney Street, Liverpool. *Trans.* 1, *C.S.* 1.

1890 PARKIN, ALFRED, M.S., 5, Albion Street, Hull. *Trans.* 1.

1881 PASTEUR, WILLIAM, M.D., 4, Chandos Street, W. (C. 1891–3.) *Trans.* 1, *C.S.* 3.

1893 PATERSON, DONALD ROSE, M.D., C.M., 18, Windsor Place, Cardiff.

1892 PAUL, FRANK THOMAS, 38, Rodney Street, Liverpool. *Trans.* 1.

1893 PAUL, JOHN ERNEST, M.B., University College Hospital, W.C.

1883 PAUL, JOHN LISTON, M.D., 43, Queensborough Terrace, W.

O.M. PAVY, FREDERICK WILLIAM, M.D., F.R.S., 35, Grosvenor Street, W. (C. 1869–71, V.P. 1882–4.) *Trans.* 3.

1886 PAYNE, JOSEPH FRANK, M.D., 78, Wimpole Street, W. *Trans.* 1.

1879 PEEL, ROBERT, 130, Collins Street East, Melbourne, Victoria.

1886 †PENNY, WILLIAM JOHN, 42, Caledonia Place, Clifton.

1887 PENROSE, FRANCIS GEORGE, M.D., 4, Harley Street, W. *Trans.* 1.

1882 PEPPER, AUGUSTUS JOSEPH, M.S., M.B., 13, Wimpole Street, W. *Trans.* 1.

1874 PHILLIPS, CHARLES DOUGLAS F., M.D., 10, Henrietta Street, W.

1884 PHILLIPS, SIDNEY, M.D., 62, Upper Berkeley Street, W. (C. 1893–4.) *Trans.* 4.

ELECTED

O.M. PICK, THOMAS PICKERING, 18, Portman Street, W. (S. 1874–7, C. 1878–80, V.P. 1885–6.) *Trans.* 4.

1885 PITT, GEORGE NEWTON, M.D., 24, St. Thomas's Street, S.E. (C. 1894.) *Trans.* 1, *C.S.* 4.

1883 PITTS, BERNARD, M.A., M.C., 109, Harley Street, W. (C. 1893.) *Trans.* 4.

1871 †PLAYNE, ALFRED, M.B., Maidenhead.

1884 POLAND, JOHN, 4, St. Thomas's Street, S.E.

1884 POLLARD, BILTON, 24, Harley Street, W. *Trans.* 2.

1868 POLLOCK, JAMES EDWARD, M.D., 52, Upper Brook Street, W. (C. 1878–80.)

1871 POORE, GEORGE VIVIAN, M.D., 30, Wimpole Street, W. (C. 1879–81.) *Trans.* 3.

1873 PORT, HEINRICH, M.D., 48, Finsbury Square, E.C.

1881 POWELL, H. A., M.A., 44, Sandgate Road, Folkestone.

O.M. POWELL, R. DOUGLAS, M.D., 62, Wimpole Street, W. (C. 1874–6, V.P. 1889–90.) *Trans.* 4.

1868 PRENTIS, CHARLES, Surgeon-Major, Bengal Medical Service; India.

1884 PRINGLE, JOHN JAMES, M.B., 23, Lower Seymour Street, W. *Trans.* 1, *C.S.* 1.

1884 PYE-SMITH, PHILIP HENRY, M.D., F.R.S., 48, Brook Street, W. (C. 1890–2.) *Trans.* 1.

O.M. QUAIN, Sir RICHARD, Bart., M.D., LL.D., F.R.S., 67, Harley Street, W. (C. 1867–9.)

1893 RAKE, ALFRED THEODORE, M.B., B.S., Guy's Hospital, S.E.

O.M. RAMSKILL, J. SPENCE, M.D., 5, St. Helen's Place, E.C.

1889 RANKING, JOHN E., M.D., Hanover House, Tunbridge Wells.

1868 RASCH, ADOLPHUS A., M.D., 7, South Street, E.C.

1883 READ, THOMAS LAURENCE, 11, Petersham Terrace, Queen's Gate, S.W.

1891 REMFRY, LEONARD, M.D., 60, Great Cumberland Place, W. *Trans.* 1.

O.M. REYNOLDS, JOHN RUSSELL, M.D., F.R.S., 38, Grosvenor Street, W. (C. 1867–8.)

1868 RICE, MICHAEL W., M.D. (C. 1876–8.)

O.M. RINGER, SYDNEY, M.D., F.R.S., 15, Cavendish Place, W. (C. 1871–2.)

1877 RIVINGTON, WALTER, M.S., 95, Wimpole Street, W. (C. 1886–8.) *Trans.* 3.

1873 †ROBERTS, DAVID LLOYD, M.D., 11, St. John Street, Manchester.

1888 ROBERTS, FRANK ERNEST, Tulse Dale Villa, Lower Norwood, S.E.

1883 ROBERTS, FREDERICK THOMAS, M.D., 102, Harley Street, W. (C. 1892–4.)

1890 ROBERTSON, ROBERT, M.D., Belgrave Road, Ventnor, Isle of Wight.

1885 ROBINSON, ARTHUR HENRY, M.D., Mile End Infirmary, Bancroft Road, N.E. *C.S.* 3.

1890 ROBINSON, GEORGE SOMERVILLE, Surgeon-Major, 13, Lupus Street, St. George's Square, S.W.

ELECTED

1892 ROBINSON, HENRY BETHAM, M.D., M.S., 1, Upper Wimpole Street, W. *C.S.* 2.

1885 ROBSON, A. W. MAYO, 7, Park Square, Leeds. (C. 1893–4.) *Trans.* 10.

1889 ROLLESTON, HUMPHRY DAVY, M.A., M.D., 13, Upper Wimpole Street, W. *Trans.* 1.

1888 ROPER, ARTHUR, Lewisham Hill, Blackheath. *Trans.* 1.

1889 ROSS, DANIEL MCCLURE, 76, Upper Berkeley Street, W.

1877 ROTH, BERNARD, 29, Queen Anne Street, W. *Trans.* 1, *C.S.* 4.

1890 ROUGHTON, EDMUND WILKINSON, 33, Westbourne Terrace, W.

O.M. ROUSE, JAMES, 2, Wilton Street, S.W. (C. 1875–7.) *Trans.* 2.

1874 ROWLAND, EDWARD ROGER, Dordrecht, Wodehouse, S. Africa.

1887 RUTHERFOORD, H. T., M.B.

1885 RYLE, REGINALD JOHN, M.D., Green View, Hadley Green, Barnet.

1882 SAINSBURY, HARRINGTON, M.D., 63, Welbeck Street, W.

O.M. SANDERSON, JOHN BURDON, M.D., LL.D., F.R.S., 50, Banbury Road, Oxford. (S. 1867–9, C. 1870, V.P. 1871–3.) *Trans.* 3.

1893 SANSOM, ARTHUR ERNEST, M.D., 84, Harley Street, W.

1873 SAVAGE, GEORGE HENRY, M.D., 3, Henrietta Street, W. (C. 1882–3.)

1886 SAVILL, THOMAS DIXON, M.D., 12, Upper Berkeley Street, W. *Trans.* 1, *C.S.* 2.

1886 SCOTT, ALFRED, 15, German Place, Brighton.

1892 SCOTT, RICHARD JAMES HERBERT, 28, Circus, Bath.

1869 SEDGWICK, LEONARD WILLIAM, M.D., 2, Gloucester Terrace, Hyde Park, W. (C. 1879–81.)

1892 SELWYN-HARVEY, JOHN STEPHENSON, M.D., 1, Astwood Road, S.W.

1878 SEMON, FELIX, M.D., 39, Wimpole Street, W. (C. 1885–7.) *Trans.* 7, *C.S.* 3.

1884 SHARKEY, SEYMOUR, J., M.D., 2, Portland Place, W.

1889 SHAW, LAURISTON ELGIN, M.D., 10, St. Thomas's Street, S.E.

1875 SHERWOOD, ARTHUR PAUL, 8, Seaside Road, Eastbourne.

1886 SILCOCK, ARTHUR QUARRY, M.D., M.S., 52, Harley Street, W. *Trans.* 1. *C.S.* 2.

1879 SKERRITT, EDWARD MARKHAM, M.D., Coburg Villa, Richmond Hill, Clifton, Bristol. *Trans.* 2.

1872 SLIGHT, GEORGE, M.D., 14, Old Burlington Street, W.

1882 SMITH, E. NOBLE, 24, Queen Anne Street, W. *Trans.* 1.

1888 SMITH, FREDERICK J., M.B., 4, Christopher Street, Finsbury Square, E.C.

1884 SMITH, R. PERCY, M.D., Bethlem Royal Hospital, St. George's Road, S.E.

1893 SMITH, SOLOMON CHARLES, M.D., 4, Portman Mansions, Baker Street, W.

O.M. SMITH, THOMAS, 5, Stratford Place, W. (C. 1869–71, V.P. 1880–2.) *Trans.* 14.

1875 SMITH, T. GILBART, M.A., M.D., 68, Harley Street, W. (C. 1883–5.)

1872 SMITH, WILLIAM WILBERFORCE, M.D., 14, Stratford Place, W.

ELECTED

1893 SNAPE, ERNEST ALFRED, 41, Welbeck Street, W.

1868 SNOW, WILLIAM V., M.D., Richmond Gardens, Bournemouth.

1890 SOLLY, ERNEST, M.B., Strathlea, Harrogate, Yorks. *C.S.* 1.

O.M. SOUTHEY, REGINALD, M.D., 32, Grosvenor Road, Pimlico, W. (C. 1867–70, 1876–8, S. 1873–5, V.P. 1883–4.) *Trans.* 16.

1888 SPENCER, WALTER GEORGE, M.S., M.B., 35, Brook Street, W. *C.S.* 5.

1885 SPICER, FREDERICK, M.D., 282, Camden Road, N.W.

1888 SPICER, ROBERT HENRY SCANES, M.D., 28, Welbeck Street, W.

1882 SPOONER, FREDERICK HENRY, M.D., 4, Maitland Place, Lower Clapton, N.E.

1876 SQUIRE, A. BALMANNO, 24, Weymouth Street, W. *Trans.* 5, *C.S.* 3.

1892 STABB, EWEN CARTHEW, St. Thomas's Hospital, S.E. *C.S.* 1.

1879 STAPLES, FRANCIS PATRICK, Brigade-Surgeon, Army.

1889 STEWART, EDWARD, M.D., Brook House, East Grinstead.

1871 STEWART, WILLIAM EDWARD, 16, Harley Street, W.

1874 †STIRLING, EDWARD C., M.D. [care of Messrs. ELDER & Co., 7, St. Helen's Place, E.C.], Adelaide, South Australia.

1888 STOKER, GEORGE, 14, Hertford Street, W.

1881 STOKES, HENRY FRASER, 2, Highbury Crescent, N.

1878 STOKES, Sir WILLIAM, M.D., 5, Merrion Square North, Dublin. *Trans.* 2.

1884 STONHAM, CHARLES, 4, Harley Street, W. *C.S.* 3.

1878 STRUGNELL, FREDERICK WILLIAM, 45, Highgate Road, Highgate, N.W. *C.S.* 1.

1878 †STURGE, WILLIAM ALLEN, M.D., 29, Boulevard Dubouchage, Nice, France. *Trans.* 4.

1872 *SUTHERLAND, HENRY, M.D., 6, Richmond Terrace, Whitehall, S.W. *Trans.* 1.

1887 SUTTON, JOHN BLAND, 48, Queen Anne Street, W. (C. 1894.) *Trans.* 9, *C.S.* 2.

1882 SYMONDS, CHARTERS JAMES, M.S. (C.), 26, Weymouth Street, W. (C. 1888–9.) *Trans.* 11, *C.S.* 4.

1876 SYMONDS, HORATIO PERCY, 35, Beaumont Street, Oxford.

1885 TAIT, EDWARD SABINE, M.D., 48, Highbury Park, N.

1885 TAIT, HENRY BREWER, Lincluden, Sunnyside Road, Hornsey Lane, N.

1891 TATE, WALTER WILLIAM HUNT, 4, Queen Anne Street, W.

1868 TATHAM, JOHN, M.D., 12, George Street, Hanover Square, W.

1886 TAY, WARREN, 4, Finsbury Square, E.C.

1878 TAYLER, FRANCIS THOMAS, M.B., 224, Lewisham High Road, S.E.

1875 TAYLOR, FREDERICK, M.D., 20, Wimpole Street, W. (S. 1879–81, C. 1882–4, V.P. 1894.) *Trans.* 9, *C.S.* 2.

1889 †TAYLOR, HENRY HERBERT, 10, Brunswick Place, Brighton.

1890 TAYLOR, JAMES, M.D., 34, Welbeck Street, W.

1882 TAYLOR, SEYMOUR, M.D., 16, Seymour Street, W. *Trans.* 1, *C.S.* 1.

1885 †TAYLOR, W. C. EVERLEY, 34, Queen Street, Scarborough.

ELECTED

1886 TEALE, THOMAS PRIDGIN, M.B., F.R.S., 38, Cookridge Street, Leeds.

1890 THANE, EDGAR HERBERT, M.D., Wagga-Wagga, New South Wales.

1882 THIN, GEORGE, M.D., 22, Queen Anne Street, W. *Trans.* 1.

1886 THOMPSON, CHARLES HERBERT, M.D., Junior Constitutional, Piccadilly, W.

O.M. THOMPSON, EDMUND SYMES, M.D., 33, Cavendish Square, W. (C. 1880–2.) *Trans.* 1.

O.M. THOMPSON, Sir HENRY, 35, Wimpole Street, W. (C. 1867–8, V.P. 1886–7.) *Trans.* 3.

1894 THOMSON, ST. CLAIR, M.D., 28, Queen Anne Street, W.

1887 THORNTON, JOHN KNOWSLEY, M.B., C.M., 49, Montagu Square, W. (C. 1890–1.)

1872 THORNTON, WILLIAM PUGIN, 35, St. George's Road, Canterbury. *Trans.* 5.

1885 THURSFIELD, THOMAS WILLIAM, M.D., Selwood, Beauchamp Square, Leamington.

1891 TOMSON, W. BOLTON, M.D., Park Street West, Luton, Bedfordshire.

1892 TOOTH, HOWARD HENRY, M.D., 34, Harley Street, W.

1887 TOTSUKA, KANKAI.

1874 TRAVERS, WILLIAM, M.D., 2, Phillimore Gardens, Kensington, W.

1884 TREVES, FREDERICK, 6, Wimpole Street, W. *Trans.* 7. (C. 1893.)

1882 TURNER, FRANCIS CHARLEWOOD, M.D., 15, Finsbury Square, E.C. (C. 1887–9.) *Trans.* 1.

1882 TURNER, GEORGE ROBERTSON, 49, Green Street, W. *Trans.* 6.

1893 TURNEY, HORACE GEORGE, St. Thomas's Hospital, S.E.

1888 TURNER, PHILIP DYMOCK, M.D., 95, Cromwell Road, S.W. *Trans.* 1.

1878 TYSON, WILLIAM JOSEPH, M.D., 10, Langhorne Gardens, Folkestone. (C. 1886–8.) *Trans.* 5.

1881 UHTHOFF, JOHN CALDWELL, M.D., 46, Western Road, Hove, Brighton.

1868 VENNING, EDGCOMBE, 30, Cadogan Place, S.W. (C. 1876–8.) *Trans.* 2.

1890 VOELCKER, ARTHUR FRANCIS, M.D., B.S., 31, Harley Street, W. *Trans.* 1.

1886 WADE, CHARLES H., Stanfield, Torquay.

1868 WAGSTAFFE, WILLIAM WARWICK, Purleigh, St. John's Hill, Sevenoaks. (C. 1878.)

1886 *WAINEWRIGHT, BENJAMIN, M.B., C.M., 67, Grosvenor Street, W. *Trans.* 2, *C.S.* 2.

1885 WAKLEY, THOMAS, jun., 5, Queen's Gate, W.

1885 WALKER, CHARLES ROTHERHAM, M.D., 7, Grove Road, Leytonstone, E.

1890 WALLIS, FREDERICK CHARLES, M.B., B.S., 26, Welbeck Street, W.

1875 WALSHAM, WILLIAM J., 77, Harley Street, W. (C. 1882–4.) *Trans.* 5, *C.S.* 1.

1888 WALTERS, FREDERICK RUFENACHT, M.D., 20, Finsbury Circus, E.C. *C.S.* 2.

1888 †WARNER, PERCY, Woodford, Essex.

1894 WASHBOURN, JOHN WYCHENFORD, M.D., 15, Trinity Square, S.E.

ELECTED

1891 WATERHOUSE, HERBERT FURNIVALL, M.D., 81, Wimpole Street, W.
1879 DE WATTEVILLE, ARMAND, M.A., M.D., B.Sc., 30, Welbeck Street, W.
O.M. WEBER, HERMANN D., M.D., 10, Grosvenor Street, W. (C. 1867–71, V.P. 1873–5.) *Trans.* 9.
1876 WEIR, ARCHIBALD, M.D., St. Mungho's, Great Malvern.
1868 WELLS, Sir THOMAS SPENCER, Bart., 3, Upper Grosvenor Street, W. (C. 1873.)
1882 WEST, SAMUEL, M.D., 15, Wimpole Street, W. (C. 1887–9.) *Trans.* 10, *C.S.* 2.
1874 WHEELHOUSE, CLAUDIUS GALEN, Hilary Place, Leeds. *Trans.* 1.
1868 WHIPHAM, THOMAS TILLYER, M.B., 11, Grosvenor Street, W. (C. 1878–80, V.P. 1894.) *Trans.* 13.
1874 WHISTLER, W. MCNEIL, M.D., 17, Wimpole Street, W.
1891 WHITE, CHARLES PERCIVAL, M.B., B.C., 144, Sloane Street, S.W.
1882 WHITE, EDWIN FRANCIS, Westlands, 280, Upper Richmond Road, Putney, S.W.
1890 WHITE, GILBERT B. MOWER, M.B., B.S., 105, Gower Street, W.C.
1883 WHITE, WILLIAM HALE, M.D. (*Hon. Secretary*), 65, Harley Street, W. (C. 1887–9. S. June, 1893.) *Trans.* 8, *S.C.* 2.
1883 WHITE, WILLIAM HENRY, M.D., 43, Weymouth Street, W. *C.S.* 1.
1882 WHITTLE, EDWARD GEORGE, M.D., 65, Dyke Road, Brighton.
1871 WIGHT, GEORGE, M.B., C.M.; 428, Liverpool Road, N.
1879 WILCOX, HENRY, M.B., Newlyn, Fleet, Hants.
1884 WILLCOCKS, FREDERICK, M.D., 14, Mandeville Place, W. *C.S.* 1.
O.M. WILLETT, ALFRED, 36, Wimpole Street, W. (C. 1872–5, V.P. 1889–91.) *C.S.* 1.
1890 WILLETT, EDGAR, M.B., 24, Welbeck Street, W.
1888 WILLIAMS, CAMPBELL, 24, Welbeck Street, W.
O.M. WILLIAMS, CHARLES THEODORE, M.D., 2, Upper Brook Street, W. (C. 1877–9, V.P, 1889–90.) *Trans.* 8.
1888 WILLIAMS, DAWSON, M.D., 25, Old Burlington Street, W. (C. 1893–4.)
1881 WILLIAMS, JOHN, M.D., 63, Brook Street, W. (C. 1885–6.)
1890 WILLIAMS, W. ROGER, 28, Winckley Square, Preston.
1876 WILLIAMSON, JAMES MANN, M.D., Ventnor, Isle of Wight.
O.M. WILLIS, FRANCIS, M.D., The Spa, Braceborough, Stamford.
1893 WILLS, JOSEPH PEARCE BUDGETT, M.D., Bexhill, Hastings.
1889 WILLS, WILLIAM ALFRED, M.D., 23, Lower Seymour Street, W.
1886 WILSON, ALBERT, M.D., Leytonstone, Essex.
1888 †WILSON, CLAUDE, M.D., C.M., Belmont, Tunbridge Wells. *Trans.* 2.
1891 WILSON, THEODORE STACEY, M.B., C.M., 65, Temple Row, Birmingham.
1890 WOOD, NEVILLE, 42, Elvaston Place, Queen's Gate, S.W.
1883 WOODCOCK, JOHN ROSTRON, Boston Spa, R.S.O. Yorkshire.
1879 WOODWARD, GEORGE P. M., M.D., Deputy Surgeon-General; Sydney, New South Wales.
1894 WOOLLETT, CHARLES JEROME, 35, Telford Avenue, Streatham.

ELECTED

1884 WORTS, EDWIN, 6, Trinity Street, Colchester.
1888 WYMAN, WILLIAM S., M.D., Red Brae, 18, Putney Hill, S.W.
1892 WYNTER, WALTER ESSEX, M.D., B.S., 30, Upper Berkeley Street, W.
1872 YEO, I. BURNEY, M.D., 44, Hertford Street, W. (C. 1881–3.) *Trans.* 8.

[*It is requested that any change of Title or Residence be communicated to the Secretaries before the* 1*st of July in each year, in order that the list may be made as correct as possible.*]

LIST OF MEMBERS.

ORIGINAL MEMBERS (ALPHABETICALLY).

Sir Henry Acland, M.D., F.R.S.
James Andrew, M.D.
Henry Arnott.
Richard Barwell.
Henry Charlton Bastian, M.D., F.R.S.
John Syer Bristowe, M.D., F.R.S.
Sir Wm. Henry Broadbent, Bart., M.D.
Bernard Edward Brodhurst.
Thomas Bryant.
Sir George Buchanan, M.D., F.R.S.
Thomas Buzzard, M.D.
William Cayley, M.D.
William Selby Church, M.D.
Edward Clapton, M.D.
John Couper.
John Croft.
William Howship Dickinson, M.D.
John Langdon Down, M.D.
Sir Dyce Duckworth, M.D.
Alfred B. Duffin, M.D.
Arthur Edward Durham.
John Eric Erichsen, F.R.S.
John Harley, M.D.
Christopher Heath.
Graily Hewitt, M.D.
Timothy Holmes.
Carsten Holthouse.
John Whitaker Hulke, F.R.S.
Sir George Murray Humphry, M.D., LL.D., F.R.S.
Jonathan Hutchinson, F.R.S.
J. Hughlings Jackson, M.D., F.R.S.
Sir William Jenner, Bart., M.D., F.R.S.
Charles Kelly, M.D.
John Langton.
George Lawson.
Henry Lee.
Arthur Trehern Norton.
Thomas William Nunn.
John William Ogle, M.D.
Sir James Paget, Bart., F.R.S.
Frederick William Pavy, M.D., F.R.S.
Thomas Pickering Pick.
Richard Douglas Powell, M.D.
Sir Richard Quain, Bart., M.D., F.R.S.
J. Spence Ramskill, M.D.
John Russell Reynolds, M.D., F.R.S.
Sydney Ringer, M.D., F.R.S.
James Rouse.
John Burdon Sanderson, M.D., F.R.S.
Thomas Smith.
Reginald Southey, M.D.
Edward Symes Thompson, M.D.
Sir Henry Thompson.
Hermann D. Weber, M.D.
Alfred Willett.
Charles Theodore Williams, M.D.
Francis Willis, M.D.

ARRANGED ACCORDING TO DATE OF ELECTION.

1868 Constantine Holman, M.D.
Thomas Tillyer Whipham, M.B.
Christian G. H. Baümler, M.D.
John Cavafy, M.D.
James Grey Glover.
T. Henry Green, M.D.
Howard Marsh.
Arthur Bowen Richards Myers.
Charles Prentis.
Edgcombe Venning.
Sir Thomas Spencer Wells, Bart.
John Ford Anderson, M.D.
George Granville Bantock, M.D.
George Charles Bright, M.D.
Frank W. Cooper.
Julian Evans, M.B.
Edward Hooper May, M.D.
William Warwick Wagstaffe.
William Ogle, M.D.
James Edward Pollock, M.D.
Franz Oppert, M.D.
William V. Snow, M.D.
Charles Drage, M.D.
John Tatham, M.D.
Frederick Royston Fairbank, M.D.
Michael W. Rice, M.D.
William Henry Day, M.D.
John Meaburn Bright, M.D.
Louis Stromeyer Little.

1869 Robert Brudenell Carter.
Leonard William Sedgwick, M.D.
J. Warrington Haward.
Henry Frederick Augustus Goodridge, M.D.
Olliver Thomas Duke, M.B.

1871 Julius Althaus, M.D.
Robert M. Gover, M.B.
Sir William Mac Cormac.
Alfred Playne, M.B.
William F. Butt.
George Wight, M.B.
Ebenezer Diver, M.D.
George Vivian Poore, M.D.
William Edward Stewart.

1872 Thomas Cooke.
J. Burney Yeo, M.D.
Henry Harris, M.D.
William Pugin Thornton.
Robert Liveing, M.D.
G. Anderson Critchett.
J. C. J. Fenwick, M.D.

1872 Andrew J. Myrtle, M.D.
Sir William Bartlett Dalby.
Thomas Ridge Jones, M.D.
George Slight, M.D.
Henry Sutherland, M.D.
William Wilberforce Smith, M.D.

1873 William Julius Mickle, M.D.
Robert William Parker.
David Lloyd Roberts, M.D.
George Henry Savage, M.D.
Heinrich Port, M.D.
Edwin Chisholm, M.D.
Thomas Churton, M.D.

1874 John Hammond Morgan.
Edward R. Rowland.
Claudius Galen Wheelhouse.
Charles Douglas F. Phillips, M.D.
W. M. Whistler, M.D.
Edward C. Stirling, M.D.
William Henry Bennett.
William Travers, M.D.
William Brown Holderness.
Andrew Clark.

1875 Thomas Barlow, M.D.
Sidney Coupland, M.D.
Clinton T. Dent.
C. D. B. Hale.
Frederick Bowreman Jessett.
Edward Liveing, M.D.
F. J. Marshall.
Edward Nettleship.
William J. Walsham.
Rickman John Godlee, M.S.
Arthur Paul Sherwood.
T. Gilbart Smith, M.D.
James Frederic Goodhart, M.D.
William Richard Gowers, M.D., F.R.S.
William Smith Greenfield, M.D
Shirley F. Murphy.
Herbert W. Page.
Frederick Taylor, M.D.

1876 Arthur E. J. Barker.
Horatio Percy Symonds.
A. Balmanno Squire.
Archibald Weir, M.D.
David White Finlay, M.D.
Henry Greenway Howse, M.S.
Furneaux Jordan.
R. Clement Lucas, B.S.
James Mann Williamson, M.D.
George Buckston Browne.

1876 Arthur Edwin Temple Longhurst, M.D.
1877 Robert Hogarth Clay, M.D.
A. Pearce Gould, M.S.
Henry Radcliffe Crocker, M.D.
David B. Lees, M.D.
Walter Hamilton Acland Jacobson, M.B., M.Ch.
Isambard Owen, M.D.
William Ewart, M.D.
Henry Morris, M.B.
William Miller Ord, M.D.
Walter Rivington, M.B.
Henry Ambrose Lediard, M.D.
Bernard Roth.
Henry Hugh Clutton.
Malcolm Alex. Morris.
1878 George P. Field.
Thomas Warner Lacey.
Thomas Colcott Fox, M.B.
Felix Semon, M.D.
Henry de Fonmartin, M.D.
C. H. Golding-Bird, M.B.
Donald Wm. Charles Hood, M.D.
Sir Joseph Lister, Bart., F.R.S.
Francis Thomas Tayler, M.B.
F. de Havilland Hall, M.D.
Storer Bennett.
Sir William Stokes, M.D.
William Allen Sturge, M.D.
William Joseph Tyson, M.D.
William Johnston, M.D.
Charles Robert Bell Keetley.
William Appleton Meredith, C.M.
Frederick William Strugnell.
1879 William Edward Burton.
James Magill, M.D.
Wm. John Vereker Bindon, M.D.
Edward Markham Skerritt, M.D.
Henry Wilcox, M.B.
James Inkson, M.D.
John Abercrombie, M.D.
F. G. Dawtrey Drewitt, M.D.
Stephen Mackenzie, M.D.
William Harrison Cripps.
Francis Patrick Staples.
Geo. Courteney Henderson, M.D.
Thomas John Maclagan, M.D.
Henry Davy.
Thos. Walter Harropp Garstang.
George Lichtenberg, M.D.
Charles W. Mansell Moullin.
John Reuben Lunn.
Armand de Watteville, M.D.
1879 George P. M. Woodward, M.D.
J. Neville Davies-Colley, C.M.
Robert Peel.
Frederic S. Dennis, M.D.
1880 T. Mark Hovell.
Wyndham Cottle, M.D.
Henry Francis Baker.
Bernard O'Connor, M.D.
Charles Edward Beevor, M.D.
1881 George Henry Makins.
Robert William Burnet, M.D.
James Kingston Fowler, M.D.
Charles Edward Harrison, M.B.
Malcolm Macdonald McHardy.
Rushton Parker.
John Williams, M.D.
Montagu Lubbock, M.D.
William Pasteur, M.D.
Henry Fraser Stokes.
John Caldwell Uhthoff, M.D.
Henry Trentham Butlin.
H. A. Powell, M.A.
1882 George Robertson Turner.
E. Noble Smith.
Robert William Goldie.
Frederick Charles Barker, M.D.
William Henry Kesteven.
Frederic Morell Mackenzie.
Daniel Colquhoun, M.D.
Seymour Taylor, M.D.
Francis Charlewood Turner, M.D.
Philip Henry Bindley, M.B.
Edward George Whittle, M.D.
D. H. Goodsall.
Frederick Henry Spooner, M.D.
J. W. Dennis Dallaway.
Frederick Haycraft Berry, M.D.
Herbert Collier, M.D.
Samuel West, M.D.
Emile Emond, M.D.
Eugene Goddard, M.D.
Charters James Symonds.
Angel Money, M.D.
C. F. Coxwell, M.B.
George Allan Heron, M.D.
Augustus Joseph Pepper, M.B.
Harrington Sainsbury, M.D.
George Thin, M.D.
Edwin Francis White.
1883 Charles Gross.
Anthony A. Bowlby.
Cecil Yates Biss, M.D.
Percy Kidd, M.D.
William Henry White, M.D.

George Oliver, M.D.
Hubert Montague Murray, M.D.
Robert Fitzroy Benham.
William Henry Allchin, M.B.
John Mitchell Bruce, M.D.
William Arbuthnot Lane, M.S.
Bernard Pitts.
William Hale White, M.D.
William Coode Adams, M.B.
William Anderson.
Robert Leamon Bowles, M.D.
George Henry Jackson.
George Hunt Orton, M.B.
John Liston Paul, M.D.
Thomas Laurence Read.
Frederick Thomas Roberts, M.D.
Charles Alfred Ballance, M.B.
John Hopkins.
John Rostron Woodcock.
1884 Frederick Willcocks, M.D.
R. Percy Smith, M.D.
Edgar Duke.
John Mackern, M.B.
Paul M. Chapman, M.D.
Wilmot Parker Herringham, M.B
Philip Henry Pye-Smith, M.D. F.R.S.
Charles Stonham.
Dudley Wilmot Buxton, M.D.
Edwin Worts.
Seymour J. Sharkey, M.B.
Frederick Treves.
John James Pringle, M.B.
Frederick Lucas Benham, M.D.
Walter Edmunds, M.D.
Stephen Paget.
Lambert Hepenstal Ormsby, M.D.
John Poland.
Edwin Leonard Adeney, M.D.
Victor Horsley, F.R.S.
Henry Carr Maudsley, M.D.
Bilton Pollard.
1885 Frederick Spicer, M.B.
Herbert Larder.
A. Hughes Bennett.
James Berry.
Frederick Walker Mott, M.D.
George Newton Pitt, M.D.
W. C. Everley Taylor.
Sidney Philip Phillips, M.D.
A. W. Mayo Robson.
Thomas Wakley, jun.
Herbert William Allingham.
Thomas William Thursfield, M.D.
1885 Alexander Dalton Murray, M.B.
Robert Maguire, M.D.
Robert Alexander Gibbons, M.D.
Thomas Fitz-Patrick, M.D.
Henry Brewer Tait.
Charles Rotherham Walker, M.D.
Richard Caton, M.D.
Arthur Henry Robinson, M.D.
Edward Sabine Tait, M.B.
William Bruce Clarke.
Charles Barrett Lockwood.
Reginald J. Ryle, M.D.
J. Michell Clarke, M.B.
Henry George Armstrong.
Roderick Maclaren, M.D.
W. Watson Cheyne.
Edward Liveing Fenn, M.D.
1886 Thomas Dixon Savill, M.D.
John Cahill.
Charles Henry Wade.
Benjamin Wainewright.
Waren Tay.
William John Penny.
William Henry Battle.
James Hardie, M.D.
Francis Henry Hawkins, M.B.
R. Hingston Fox, M.D.
Henry Edward Juler.
John Ward Cousins, M.D.
Joseph Frank Payne, M.D.
T. Pridgin Teale.
H. H. Lankester.
Arthur T. Davies, M.B.
Charles Herbert Thompson, M.D.
Arthur Quarry Silcock.
Henry Handford, M.D.
Alfred Scott.
Albert Wilson, M.D.
1887 Archibald E. Garrod, M.D.
H. T. Rutherfoord, M.B.
Kankai Totsuka.
Thomas Oliver, M.D.
Francis George Penrose, M.D.
Samuel Herbert Habershon, M.D.
John Knowsley Thornton.
John Bland Sutton.
Oswald Auchinleck Browne, M.B.
Albert C. Butler-Smythe.
Joseph Arderne Ormerod, M.D.
C. J. Arkle, M.D.
J. H. E. Brock, M.B., B.S.
Francis William Clark.
A. H. Weiss Clemow, M.D., C.M.
E. Hurry Fenwick.

1887 Henry William Freeman.
R. Lawford Knaggs, B.C.
John D. Malcolm, M.B., C.M.
Sidney Martin, M.D., B.S.
Thomas Horrocks Openshaw, M.B.
1888 A. G. Barrs, M.D.
J. W. Batterham, M.B., B.S.
Montagu Handfield-Jones, M.D.
Alfred Rice Oxley, M.D.
Arthur Roper.
Robert Henry Scanes Spicer, M.D.
Campbell Williams.
Frederic S. Eve.
Alexander Morison, M.D.
Frederick Page, M.D.
Frederick J. Smith, M.B.
Frederick R. Walters, M.D.
Claude Wilson, M.D., C.M.
Charles H. Gage-Brown, M.D.
Arthur Jamison, M.D., C.M.
J. H. Menzies.
Frank Ernest Roberts.
George Stoker.
Robert Ashton Bostock.
Hugh Armstrong.
Hyde Marriott, M.B.
Percy Warner.
J. F. James, M.B.
Edwin A. Barton.
W. P. May, M.B.
Philip D. Turner, M.D.
William S. Wyman, M.D.
Dawson Williams, M.D.
Augustus W. Addinsell, M.B., C.M.
John Anderson, M.D.
Henry French Banham, M.D.
George Haynes Hetherington.
David James Mason, M.D., C.M.
Walter G. Spencer, M.S., M.B.
1889 Theodore Dyke Acland, M.D.
Raymond Johnson, M.B., B.S.
H. Davy Rolleston, M.B., B.S.
P. MacBride, M.D.
D. Newman, M.D.
Herbert Elwin Harris, M.D.
John E. Ranking, M.D.
William Alfred Wills, M.B.
Edward Ashby Fardon.
Wm. Alexander Carte, M.D., M.Ch.
Stanley Boyd, M.B.
George Ezra Halstead, M.D., B.S.
Edward Stewart, M.D.
1889 Henry Herbert Taylor.
John Duncan, M.D.
Wm. Wallis Ord, M.B., B.Ch.
Leonard Arthur Bidwell.
Arthur J. M. Bentley, M.D.
Francis R. B. Bisshopp, M.B.
Henry Percy Dean, M.B., B.S.
Louis Albert Dunn, M.S.
Percy Flemming, M.B.
Daniel Mackay Forbes.
H. Pennell Hawkins, M.B., B.S.
D. M. Ross.
Lauriston Elgin Shaw, M.D.
1890 John Rose Bradford, M.D.
J. Fletcher Little, M.B.
Robert Robertson, M.D.
Ernest Solly, M.B.
James Taylor, M.D.
Francis O. Buckland, B.A., M.B., C.M.
E. Baxter Forman, M.D.
G. Somerville Robinson.
Edmund W. Roughton, B.S.
Edgar Willett, M.B.
Thomas H. Rickard Crowle.
Robert A. Bindley.
James Calvert, M.D.
H. Roxburgh Fuller, M.D.
Arthur F. Voelcker, M.D.
Neville Wood.
W. Roger Williams.
Gilbert B. M. White, M.B., B.S.
Frederick Charles Wallis, M.B., B.S.
Alfred Parkin, M.S.
George A. Hawkins-Ambler.
James Harper, M.D.
Walter Henry Brown.
John Walter Carr, M.D.
Ernest Le Cronier Lancaster, M.B., B.Ch.
Patrick Manson, M.D., C.M.
Miles Miley, M.A., M.B.
Edgar Herbert Thane, M.B.
Charles William Chapman, M.D.
Michael G. Foster, M.B., M.A.
1891 Frederic François Burghard, M.D., M.S.
H. E. Leigh Cannev, M.B.
Roger Neville Goodman, M.B.
Herbert Furnivall Waterhouse, M.D.
Leonard Remfry, M.D.
Walter William Hunt Tate.

1891 William Lee Dickinson, M.D.
Greville MacDonald, M.D.
J. Kingston Barton.
Henri Dardenne, M.B.
J. Dundas Grant, M.D.
W. Kington Fyffe, M.B., B.C.
Albert Carless, M.S., M.B.
Bolton Tomson, M.D.
Harry Littlewood, M.D.
Hector W. G. Mackenzie, M.A., M.D.
Chas. Percival White, M.B., B.C.
Arnold Caddy.
Theodore Stacey Wilson, M.B., C.M.

1892 William Hunter, M.D.
Frank Thomas Paul.
Edward Cotterell.
Frank Richardson Blaxall, M.D.
Walter Essex Wynter, M.D., B.S.
Damer Harrison.
Henry Widenham Maunsell, M.D.
John Alfred Masters, M.D.
Walter Giffard Nash.
John Stephenson Selwyn-Harvey, M.D.
Ewen Carthew Stabb.
Edward John Lewis, M.B., B.C.
Henry Betham Robinson, M.D., M.S.
Richard James Herbert Scott.
Howard Henry Tooth, M.D.

1893 John Ernest Paul, M.B.
James William Bond, M.D.
Harry Campbell, M.D.
W. Soltau Fenwick, M.D.
Ernest Alfred Snape.
Lewis G. Glover, M.B., B.C.
Solomon Charles Smith, M.D.
William Bracewell Mercer, M.B., B.C.

1893 Robert Henry Cole, M.B.
Donald Rose Paterson, M.D., C.M.
Edward Henry Ezard, M.D., B.Sc.
Walter Spencer Anderson Griffith, M.D.
Alfred Theodore Rake, M.B., B.S.
Francis Charles Abbott, M.B., B.S.
James William Browne, M.B.
Edwin Harding Lendon, M.B.
R. J. Bliss Howard, M.D.
Henry Jones Curtis, M.D., B.S.
Henry Albert Caley, M.D.
John Henry Dauber.
Theodore Henry Ionides.
Arthur Foxwell, M.D.
Horace George Turney.
Henry Grabham Lys, M.D.
John Knill Kinsman Benjamin.
Arthur Ernest Sansom, M.D.
John Henry Bryant, M.D.
G. Johnston, M.B.
Willmott H. Evans.
Charles Gibbs.
Robert Stephen Charsley.
Joseph Pearce Budgett Wills, M.D.
Arnold Lawson.
Snape, Ernest Alfred.

1894 Herbert Morley Fletcher, M.D.
John Wychenford Washbourn, M.D.
Edward Wilberforce Goodall, M.D.
Harry Gilbert Barling.
Ernst Michels.
Charles Elliott Leopold Barton Hudson.
Charles Jerome Woollett.
St. Clair Thomson.

REPORT

OF THE

COUNCIL OF THE CLINICAL SOCIETY,

MAY, 1894.

THE COUNCIL has the pleasure of reporting that the affairs of the Society are in a very prosperous condition.

The Members now number 535, of whom 23 have been elected during the session. Ten have ceased to be Members, and the Council regrets that five of these have been lost by death, viz. Sir Andrew Clark, Bart., a former President of the Society; Dr. W. B. Hadden, who at the time of his death was Hon. Sec. of the Society; Dr. A. T. Myers, Wm. Barnard W. Holt, and Dr. Rhys Williams.

In consequence of the great interest shown by the Members of the Society in the exhibition of Clinical Cases, the Council proposes to devote the whole of at least three evenings each session to this branch of the Society's work. These meetings will commence at 8.30 o'clock and will close at 10. Members of the Society will be allowed to give notice to the Secretaries of their intention to exhibit Clinical Cases up to four days before the meeting, and a list of the Cases to be exhibited will be sent by post to every Member in the United Kingdom. This change necessitates certain alterations in the Laws and Provisional Regulations.

The Treasurer's Statement of Accounts shows that the financial condition of the Society is highly satisfactory. During the year we have defrayed the cost of the Report on the Periods of Incubation and Contagiousness of certain Infectious Diseases, which amounted to £117 15*s.*, and we have increased our Balance in hand by over £47.

1st May, 1893, to 30th April, 1894.

	Receipts.	£	s.	d.
1893–4	Balance at Bank, 1st May, 1893	309	11	3
	281 Subscriptions at 21*s.*	295	1	0
	128 „ received through Bank	134	8	0
	17 Admission Fees at £2 2*s.*	35	14	0
	2 Composition Fees (Life)	31	10	0
	1 „ Fee (Trans.)	2	2	0
	Sale of *Transactions*:			
	By the Publishers	27	9	0
	Miscellaneous Receipts	0	10	0
	Dividends on Consols	16	0	8
		£852	5	11

	Payments.	£	s.	d.
1893–4	Cost of *Transactions*, Vol. XXVI:			
	Paper, printing, binding, and delivery	153	0	0
	Illustrations	41	4	0
	Cost of "Incubation Report"	117	15	0
	Meetings:			
	Expenses of rooms (Rent, &c.)	105	0	0
	Refreshments (1892–3)	33	8	0
	R. Coldrey, for attendance	7	10	0
	Microscopes	1	0	0
	Treasurer and Hon. Secretaries:			
	(Secretarial assistance paid in advance in previous year, £26 5*s.*)			
	Commission to Collector (1892–3)	15	15	0
	„ „ (1893–4)	15	15	0
	Petty expenditure	4	0	0
	Bank postages	0	0	3
	„ cheques and rebinding &c., cheque-book	0	8	6
	Balance in hand	357	10	2
		£852	5	11

Examined and found correct, 19*th May*, 1894. { F. W. MOTT, A. QUARRY SILCOCK, } *Auditors.*

J. W. HULKE, *President.*

WILLIAM M. ORD, *Treasurer.*

A. PEARCE GOULD, *Hon. Sec.*

Amount of Investments in hands of Trustees (Consols) £600.

PRESIDENTIAL ADDRESS

DELIVERED AT THE

CLINICAL SOCIETY OF LONDON

BY

J. W. HULKE, F.R.S.,

PRESIDENT.

GENTLEMEN,—Let me, before we begin the regular business of the Session, thank you for the great honour you have done me in placing me in this chair as your President —a chair which, I cannot forget, was first occupied by one whose memory all here present must revere—I refer to Sir Thomas Watson. Long since taken from us, his name to some will be little more than an εἴδωλον; but I am happy to know that not a few members yet remain to whom the name will recall the living personality of that truly great man. A physician of the highest eminence, an excellent clinical teacher, the author of classical works characterised by an elegance of diction and composition which makes them models worthy of imitation at the present day; and, withal, a man whose sterling uprightness, and uniform courtesy towards all, secured for him the veneration of every member of his profession, and also the esteem of the public; the election of Sir Thomas Watson as our first President was in itself a happy augury of future success.

Founded in 1867 for "The Cultivation and Promotion of

the Study of Practical Medicine and Surgery," it has occurred to me that it might not be wholly uninteresting now, after the lapse of twenty-six years, to note what has been the progress of our Society within this time, and to note—it can only be very briefly—some of the advances in Practical Medicine and Surgery made within this period—advances in the achievement of which the Clinical Society has ever taken a foremost place.

The list of the members of the Clinical Society published in the first volume of the *Transactions*, issued in 1868, contains the names of 129; whilst that issued last year includes 524—an increase which must be regarded as highly satisfactory. Of the 129 names of members printed in the first list, 85, including those of five past presidents, are missing from the roll last issued; but this heavy loss, mostly caused by death, has, as the figures show, been more than met by fresh accessions to our ranks. Numerically, then, the Society is flourishing. Next, looking through the record of its work, I notice that the first volume of *Transactions* contains 192 pages, embodying thirty-three contributions, whereas the recently issued volume comprises 308 pages, containing sixty-nine contributions; and I may remark that the last is not an exceptionally large volume, since as regards its size it is a fair average of the volumes issued by the Society during the past thirteen years. But not merely as regards the numerical increase of its members, and in respect of the enlargement of its *Transactions*, may we fairly claim that the Society is flourishing; important as are these signs of progress, yet more important is the progress which I venture to suggest may be discerned in the quality and the thoroughness of the communications made to it in recent years. That the Clinical Society has kept well to the front in the general advance along the whole line of "Practical Medicine and Surgery" by which the last quarter of a century has been so singularly distinguished, its archives bear incontrovertible testimony. They are so rich a treasury that even a bare enumeration of all the subjects treated in them would be far beyond my present scope; it would be also wearisome to you to listen to, but I will just allude to some. In the first volume, published in 1868, are two papers illustrating the value of antiseptics in surgical procedure, then hotly discussed, doubted by some and by some disputed. In one of these papers my former colleague, the late Campbell de Morgan, an able, very philosophical surgeon, advocated the use of zinc chloride in

abscesses connected with joints, a chemical substance of yet acknowledged value in selected cases. The other paper, communicated by Mr. A. Durham, shows the advantages he had obtained from the employment of carbolic acid in a case of compound comminuted fracture of the thigh. Arrived at our present standpoint such matters seem trivial to us, but they were not so regarded at the time when they were brought under the notice of the Society.

From that date onwards up to the present, there will be found notices in our volumes of nearly every chemical antiseptic agent, and mention of most of the methods of employing them. The paramount importance of strict asepsis for the attainment of the best results from surgical operations, a truth which only slowly compelled acknowledgement, now and for many past years universally accepted as incontrovertible, was in my student days, I need scarcely say, hardly recognised. I shall not expose myself to adverse comment, if I say it was imperfectly understood by a few, and completely ignored by most surgeons in their daily work. This is no exaggeration. When I came to London from the country, where I had served my apprenticeship under an exceptionally intelligent family-practitioner and had been drilled in habits of scrupulous cleanliness, I saw on attending the ward-visit of a distinguished surgeon in a hospital to which, on other grounds, I was strongly attracted, that surgeon, after opening an abscess, proceed with soiled hands unwashed to the examination of another patient—a circumstance that now all would consider reprehensible, then appeared not to be thought of any moment. I should add that even then such gross inobservance of cleanliness was not usual here in London. In Paris, however, I found, a few years later, matters in respect of inattention to cleanliness much worse, for at the Hôpital de l'École I used to see the visiting surgeon, his internes and dressers, pass from patient to patient, merely previously wiping their hands, loaded with blood and discharges, upon the long white aprons which were brought to them from the lingerie beautifully clean at the beginning of the ward-visit, and which long before the end were in a very dirty condition.

Looking backwards from our present standpoint, we cannot miss perceiving how the spread of infective septic disorders, formerly so rife, was the natural direct consequence of such dirty habits. Not only appreciating the paramount importance of strict, scrupulous cleanliness, it did

not then occasion surprise that hospital construction exhibited defects which to our younger members will probably appear to be scarcely credible. Thus, when I entered the Medical Department of King's College as a student, and during several subsequent years, the hospital in Carey Street was an old building previously the workhouse of the parish of St. Clements Danes. It abutted towards Clare Market on an overfull burial-ground, the surface of which, through the excessive number of interments in it, had risen above the level of the adjoining street. Under the male accident ward, separated from this only by a plank floor and a pervious roof, were charnel vaults filled from flagstones to roof with the bones and broken coffins that had been removed from the graveyard to afford space for fresh interments! Yet worse, in the old hospital the same theatre was used for operations and also for necropsies! It was separated from two large wards only by the breadth of a staircase into which its door and those of the two wards directly opened—a structural plan which made it impossible to exclude perfectly from the wards air tainted by the necropsies. All this occurred at a period when the late Sir William Fergusson, one of its surgical staff, the most dexterous operator I have ever seen, one whom I am ever proud to think of as my old master in surgery, and whose many personal kindnesses to myself I can never forget, was at the zenith of his reputation; when the number of large operations performed there was exceptionally great for so small an institution, when the theatre of King's College Hospital attracted surgeons from all parts to see the operating; and when the necropsies conducted by Dr. Todd and Dr. G. Budd, two of the foremost clinical teachers and pathologists of their time, brought together there not only crowds of students, but also of practitioners. This picture,—not the representment of a dream, but an outline of actual facts,—might bring to our minds those terrible words which Dante read over the entrance to the lower regions—"All hope abandon, ye who enter here." But happily this would be an exaggeration, for whilst the mortality after operations was then what now we should certainly deem excessive, yet recoveries, even with such adverse surroundings, were not few. Pardon me the remark, which may appear trite and trivial but which points to a matter that I think I not infrequently see ignored in daily routine of work—it is that for the attainment and maintenance of asepsis a strict attention to *method*, and a scrupulous observance of *detail* are of nearly

as great moment as the selection of the agent employed. Absolute cleanliness, the exclusion of every noxa from a wound, is the aim of all. For the achievement of this the surgeon is not limited to the use of any particular agent, he is not restricted to the employment of any particular method.

It is a truism that the due recognition of the prime importance of asepsis has rendered practicable the extension of surgical procedures into regions of the human body which in former times seemed to lie almost beyond their scope, and now, as a matter of common knowledge and of daily practice, operations are performed on the parts within the skull, on the organs within the chest and belly, with an immunity and degree of success that fifty years ago would have been deemed incredible. In this advance I would claim for our Society some share. Did time and the occasion permit, I should like to cite many of the large number of examples of this progress scattered through our archives, but I must limit myself now to pointing to the last few volumes, in which are recorded a series of notable instances of the adoption of surgical measures for treating certain disorders and injuries of the digestive canal—a series of cases that will well repay an attentive study. I refer to such measures as *gastrostomy*, where there is an impediment to the entrance of food into the stomach through the natural channel; to *pylorectomy* for malignant disease narrowing the outlet of the stomach; to *inosculation* of intestine with stomach, or with another part of the gut, after excision of an intermediate portion which is gangrenous, or is perforated by ulceration, or is the seat of a tumour; to excision of the vermiform appendix; and to removal of calculi from the gall-bladder or large biliary ducts through an incision—operations now attracting much attention, and for the improvement of which surgeons are earnestly labouring. Much has been done; more remains to do before we can be satisfied with the technique of several of these procedures.

In instances of disease entailing a slowly progressive narrowing of some part of the digestive canal, surgical aid is too often not sought until a stage is reached when with greatly lessened strength the prospect of relief from an operation is much diminished. Doubtless in many instances there is difficulty in ascertaining the right moment for invoking surgical interference. In the earlier stages of these maladies the symptoms are frequently too obscure to warrant a definite opinion as to their nature; and in this uncertainty the practi-

tioner is not justified in recommending a patient to subject himself to a measure necessarily entailing great risk, a risk also which few patients will be found to accept whilst their condition continues tolerable, whilst their suffering is not acute, and where the prospect of death is not very near. Even later, when the nature of the disorder has become palpably evident, recourse to surgical assistance is often still delayed until death stares the patient in the face, until the sufferer's strength is so reduced that he has little power to rally from the shock inseparable from an operation. Every surgeon must remember painful instances of this.

An operation which has recently attracted much notice, and of which several successful cases have been brought before our Society, is excision of the vermiform appendix, generally in instances where some derangement of this has led to the formation of abscess about the cæcum. From my own experience, and from a wide observation of this class, the conviction has grown upon me that in many instances it is a safer practice not to attempt a methodical excision of the appendix, which is the ideal operation, but to content oneself with freely opening, emptying, and draining the abscess, since the disturbance and displacement of agglutinated parts, inseparable from a prolonged search for the appendix, may open a path for a wide septic infection of the peritoneal sac provoking a fatal peritonitis, of which, I think, instances have come within my notice.

Allow me again to speak a word of caution. In contemplating the performance of any large surgical operation accompanied with much risk, we ought never to lose sight of the consideration that the subject is a living being the value of whose life none can estimate—and not a cadaver. It has occasionally seemed to me that this consideration has not had its due weight, and I have sometimes been unable to avoid the conviction that operations have been undertaken in circumstances which from their nature made success unattainable. Even should this be so, I would judge leniently since none of us are free from errors of judgment, and I appreciate the aphorism that the impossibilities of one age may become the possibilities of a later time. Still there are limits, nor are they ever undiscoverable; and there is a real responsibility even though it be ignored.

If until now I have spoken exclusively of surgery, it is not that I would not give to medicine full recognition of the great progress it also has made, and in which I claim our

Society has had a share; but surgery having been mainly my life's work, I find myself less able to do justice to the achievements of medicine, although I have ever held and always tried to realise the aphorism that no one can be a truly good surgeon without possessing a fair knowledge of medicine. If I may venture to express an opinion in regard to progress made by medicine, in the presence of so many better instructed than myself, it is that a greater advance has been made in the direction of exact diagnosis than in the way of the treatment of disease. This same remark has been made by others, nor is the circumstance surprising.

Disorders of the nervous system appear to offer very apt illustrations of this lagging of medical therapeutics behind diagnosis. Recent physiological investigations have accomplished so much towards dispelling the obscurity and removing the ambiguity formerly so prevalent concerning the functions and interactions of the individual parts of the central and peripheral nervous organs, that now physicians are better able to read and to rightly interpret the symptoms associated with derangements of these parts. How intensely interesting is the study of these disorders is evidenced by the large number of cases of this class the Society has had from its very inception brought before it. But too often it satisfies neither the patient nor the physician for the one to have ascertained exactly, and the other to be told where is the exact seat and what is the precise nature of his malady. That which above all the patient craves is a remedy for his illness; and this it is which above all else the physician desires to offer, and which too often is beyond his present resources. Pharmacological research, now so actively prosecuted by earnest workers, has done something towards supplying this great want, but what it has yet accomplished is little in comparison with that which remains to be done.

From this branch of research we are promised in the near future a more philosophical selection and a more scientific application of remedies. Until these hopes are realised we cannot cast off our old guide empiricism; we must follow the more closely the pointing of the older loadstone, experience.

I would not conclude these very incomplete remarks without reference to a branch of work which the Clinical Society has carried out,—work which has incontestably a very great value,—I mean the Reports it has from time to time published upon subjects investigated by committees specially appointed for the purpose, such as the "Report on Spina bifida," that

on "Myxœdema," and lastly that on the "Incubation-period of certain Zymotic Diseases" lately issued. But let us not boast of work accomplished, since it is but a fraction of that which lies before us, of that which remains to be achieved in the discipline which our first President aptly termed the "Divine art of healing."

COMMUNICATIONS.

I.—*Dilatation of the Stomach and severe pain dependent on Pyloric Adhesions, treated by abdominal section and separation of abnormal attachments; with general remarks on visceral adhesions as a cause of obscure abdominal pain.* By A. W. Mayo Robson. *Read October* 13, 1893.

THE following cases were sent to me for operative treatment on account of extreme emaciation dependent on dilatation of the stomach, and severe pain in the epigastrium and right hypochondrium; and in both, medical treatment had been efficiently carried out without success before I saw the patients. In both, the same treatment, separation of adhesions, produced relief or cure, although the original cause, so far as it was possible to make out, was, in the one case, ulceration of the stomach, and in the other, gall-stones.

I have brought them forward because, although it is known that simple adhesions may produce serious symptoms, I believe it is not generally recognised that dilatation of the stomach, apparently tending rapidly to a fatal termination, may be cured by their separation. The history of the cases is as follows:

Case 1.—J. W., æt. 18, was sent to me by Dr. Walker, of Kirkby Stephen, with the history that although he had never been very strong, and always liable to dyspepsia, he had never had any serious illness until three years previously, when he began to suffer now and again from severe pain, stabbing in character, situated in the right part of the hypogastrium, and lasting two or three hours. He could give no cause for the attacks, which did not always follow the taking of food.

After he had had the pain for a few weeks, it would subside, and nausea and vomiting would follow, often lasting for six weeks. He would then be well for a month or so of both complaints; but during the whole three years he had never been free from pain or sickness beyond a month or six weeks.

The same sequence of symptoms usually occurred, although at times sickness accompanied the pain. On one occasion he vomited blood, and several times coffee-ground material. Three months before admission to the Infirmary the pain became localised to a spot just below the ninth rib on the right side, and he had never been a day free from pain since. He stated that a swelling could be felt at times under the right ribs when the pain was present, disappearing when the pain subsided. He complained much of offensive eructation.

He had never been jaundiced. Although he had picked up a little between the attacks, the loss of flesh had been progressive during the three years. When I saw him he weighed only 6 st. 2 lbs., and was suffering from profound weakness and extreme emaciation. Beyond a dilated stomach nothing else abnormal could be made out, and although there was marked tenderness under the right costal margin, no tumour could be felt.

A diagnosis of dilated stomach, probably dependent on adhesions of the pylorus to the gall-bladder, was made, and the patient was admitted to the Infirmary for stomach lavage and peptonised feeding, to be followed by operation if decided relief did not occur.

On July 26 the following note was made:—"During the last fortnight, although the stomach has been washed out daily with a weak boro-glyceride solution, he has suffered as much as ever from attacks of pain, generally coming on at night, but at times during the day. On examining the abdomen during the seizures no tumour can be seen or felt. There has, however, been no vomiting since admission, and his appetite is fairly good."

On July 30, though he had gained a little in weight, he still had the pain and was very anxious to have something done to give decided relief.

On August 4, 1892, the abdomen having been previously asepticised, and the stomach washed out with boro-glyceride solution, ether was administered and an incision of three inches was made through the upper end of the right linea

semilunaris, when adherent omentum was found covering the region of the gall-bladder like a veil; this was detached by the fingers, exposing the pylorus, adherent to the gall-bladder and under surface of the liver. The adhesions were freely separated and the bleeding was arrested, chiefly by sponge pressure, two or three catgut ligatures only being required to complete the hæmostasis. The wound was then closed by three rows of sutures,—a continuous one for the serous membrane, interrupted sutures for the aponeurosis, and the same for the integuments. Recovery was uninterrupted, and the wound healed by first intention.

On August 15 he said he was quite free from pain and felt well. He was kept recumbent for three weeks, although he was allowed to take food freely.

He returned home at the end of eight weeks, and had gained nearly 2 st. in weight.

At Christmas I had word from him to say he was in robust health and doing hard farm-work.

In April, 1893, I received a letter from Dr. Walker to say that he had remained well up to February, 1893, when there was some return of his pain, but on seeing him I found his weight was still 8½ st., and under general treatment he was soon well again.

I heard from him in September, 1893, when he said he was perfectly well.

The above notes are abstracted from a report furnished by my house surgeon, Mr. W. C. Mayo.

Case 2.—J. G., æt. 39, residing at Calgary, Alberta, was advised to see me by Dr. Telfer, of Montreal. He gave the history of having been in good health up to six years previously, when he had a severe attack of pain in the upper region of the abdomen, which lasted for three days, and which was thought to be due to gall-stones, but he was not jaundiced and no stone was found in the evacuations. After this he had good health for a year, when the pain returned and was followed by peritonitis, which produced an illness of some weeks' duration, from which his friends despaired of his recovery. His convalescence was very slow, and he had never been well since, having suffered from abdominal pain from time to time and from gradual loss of flesh. For six months before seeing me he had vomited daily, and had suffered much from pain in the upper part of the abdomen; the pain commencing in the epigastrium, radiating to the left

side of the abdomen, and usually passing to the interscapular region; the attacks frequently ended in vomiting, but were never followed by jaundice.

He had been treated by regular stomach lavage, dieting, medicines, &c., but without relief, and when I saw him he was reduced very considerably and was extremely weak. On examination I found the stomach much dilated, but could find no evidence of tumour over the pylorus or gall-bladder. The vomit contained free hydrochloric acid and some yeast-cells and sarcinæ.

He was admitted to the Infirmary, and on March 12, 1893, the abdomen was opened in the right linea semilunaris, when the stomach was found to be not only immensely dilated but adherent by its anterior surface to the abdominal walls, and by its pyloric extremity to the under surface of the liver and gall-bladder. Nothing else abnormal was found, and the adhesions, which were very firm, were separated as far as possible, the bleeding being arrested chiefly by sponge pressure, only a few catgut ligatures being required. The wound was then closed. Recovery was uninterrupted. No sickness followed, and from within forty-eight hours of the operation he began to pick up, and had neither pain nor sickness again.

When he left England in May he wrote to say that he had gained 2 st. in weight, and was feeling splendidly well. To use his own terms, he said the operation had been "a grand success."

The case is abstracted from notes furnished by my late house surgeon, Mr. A. Whitehead, M.B., M.S.

Remarks.—Although, on account of emaciation dependent on dilatation of the stomach, the cases related would scarcely come under the class of obscure abdominal pain often spoken of as neurosis—a term, by-the-bye, which should, I think, be used much less frequently than it is, and which, I think, will be employed more carefully when our diagnostic powers have become more perfected,—yet they serve well to illustrate the fact, that adhesions alone may be responsible for many of the cases of obscure abdominal pain which are so trying both to patients and their medical advisers.

I have seen and successfully treated by operation a number of such cases, where, although the symptoms produced absolute invalidism, signs were either slight or entirely wanting, but where an abdominal exploration showed adhesions which had produced visceral distortion and disability. Among those cases I would mention examples of the stomach being tied

down by omental adhesions, the pylorus being fixed to the gall-bladder or liver; intestinal coils adherent one to another or to the abdominal wall; the gall-bladder fixed to the parietes or to the colon; the vermiform appendix distorted and tied in an abnormal position; the ovaries or Fallopian tubes, or both, displaced and fixed; and last, but not least, omental adhesions of great variety, producing visceral distortion—all of which examples are curable or relievable by a carefully planned and skilfully executed laparotomy, and that without any mutilation by removal of viscera. Moreover, if, as is often the case, the original disease has passed away, there is nothing to retard recovery, and by this I mean not simply recovery from operation, but complete restoration to good health.

It is difficult or impossible to lay down any hard-and-fast rules for guidance in this class of cases, but personally I should feel it wise, in cases of obscure abdominal pain producing invalidism or inability, after medical treatment had been fully tried and failed, to open the abdomen in order to clear up the diagnosis, and then to adopt that line of treatment which seemed to be indicated. Moreover, we must not lose sight of the fact, that a surgical operation sometimes cures in a way quite inexplicable on ordinary lines,—as, for instance, in those cases where a kidney has been explored for stone, but where, although no calculus has been removed, the pain has disappeared not to return, and the patient has recovered completely.

The cases I have related in detail are of interest, not only from a diagnostic and an etiological point of view, but I venture to think also from that of treatment, for if some of these cases of dilated stomach depending on pyloric distortion can be cured by simply separating adhesions, it will be manifestly a safer and more satisfactory method that that of dilating the pylorus or performing pyloroplasty or gastroenterostomy, in all of which the stomach has to be opened.

I am afraid it will appear as if I had included two distinct subjects in my paper, viz. dilatation of the stomach and obscure abdominal pain dependent on adhesions, but a more careful study of the paper will show that I wish to lay special stress on adhesions producing visceral disability and their capability of cure by operation; if I succeed in showing that these adhesions are not so harmless as some observers would lead one to suppose, my purpose will have been served.

II.—*Two cases of Excision of Malignant Growth from Great Intestine.* By WALTER EDMUNDS. *Read October* 13, 1893.

CASE 1.—The patient, a man æt. 62 years, was admitted to St. Thomas's Home in September, 1889. Six years before admission he had suffered from a tapeworm, which he passed. Two and a half years before admission he had an attack of severe pain in the epigastric region. For about a year before admission he had occasional vomiting, sometimes on a full and sometimes on an empty stomach, sometimes in the early morning; there was no pain after food. About five months before admission he noticed a small lump in the right iliac region; it gradually increased in size. Six weeks before admission he passed at stool a considerable quantity of clotted blood. Throughout his illness his bowels were fairly regular, and he never suffered from constipation to any serious extent. He had lost much flesh latterly.

State on admission.—In fair general health. There is in the right iliac region a lump apparently about the size of a hen's egg; it is freely moveable. It was diagnosed as a malignant tumour, and with the patient's consent an attempt to remove it was determined on.

The abdomen was opened in the right semilunar line and the tumour exposed; it was seen to be in the cæcum. It was drawn out, and the ileum above and the cæcum beyond the growth were constricted and divided; the termination of the ileum and the cæcum, together with the growth in it and the corresponding part of the mesentery to a certain depth, were removed; the divided ends of the bowel were both brought out externally.

The patient recovered from the operation, but he suffered somewhat from ether-bronchitis; there was also a good deal of eczema of the surrounding skin, due to irritation caused by the escaping chyme. Various applications were tried for this; the most satisfactory seemed the free use of vaseline. The patient is now, four years after the operation, in good health.

No attempt has been made to restore the continuity of the bowel; but from fæces escaping at the opening of the ascending colon when the opening of the ileum is closed by a plug, the patient thinks a communication has formed spontaneously between the large and small intestines. The eczema about the orifice has undergone spontaneous cure.

Remarks.—The long period which has passed since the operation shows the desirability in similar cases of attempting where possible the removal of the growth, and not resting content with a merely palliative procedure.

The present good health and good condition of the patient shows that the great intestine is not necessary for the nutrition of the body; its function in man seems to be merely mechanical: it is well to bear this in mind in considering the propriety of operations involving an artificial anus in the lower part of the ileum.

Case 2.—Patient, a man æt. 54 years, was admitted to St. Thomas's Home in June, 1892. Six months before admission he had suffered from pain in the lower part of the abdomen and constipation, to which he had not previously been subject. Three weeks before admission he had an attack of obstruction of the bowels, which did not yield to treatment for twelve days.

Patient on admission was suffering from slight distension of the abdomen. Dr. Hawkins saw him with me; it was thought that there was a malignant obstruction of the bowels, and it was decided to explore. A median incision was made, and a circular growth was found on the sigmoid flexure, constricting it. The part of bowel affected was brought out at the incision, and a glass tube was passed through the mesentery and under two enlarged glands which were felt in it, but the growth was not removed till the fourth day; during these four days the patient passed flatus without difficulty (except at one period), but there was no action of the bowels.

On the first day the bowel was dressed with the usual protective tissue, and cyanide gauze beyond, but it was found that the protective shut in the discharge; for it was substituted the protective gauze tissue recommended by Dr. Renton, of Glasgow, which answered its valuable purpose of allowing the discharge to pass through to the dressing and at the same time preventing the dressing becoming adherent.*

On the fourth day, by which time it was considered that

* *British Medical Journal*, June 14, 1890.

the abdominal cavity was shut off by adhesions, the bowel above and below the growth was divided, and the length of bowel invaded by the growth, together with the corresponding mesentery and the two glands contained in it, were removed; the two divided ends of bowel were sutured together.

Eight hours after this the patient passed a formed motion, and in the twenty-four hours following the operation there were altogether seven actions of the bowels.

In twenty-four hours the line of suture had fallen back flush with the skin, and during the next three or four days there were normal actions of the bowels *per anum*, but the line of sutures did not hold, and an artificial anus formed.

Three months after the operation nearly all the fæces were passing by the artificial anus, and the patient wished to have something further done to remedy this state of things. After some consideration it was decided to attempt to form an anastomosis between the bowel above and the bowel below the artificial anus, and to subsequently close the latter.

The operation selected was that of Halsted; this is a lateral anastomosis, but it differs from Senn's operation in no plates being used, and in the sutures not being carried through the whole thickness of the bowel, but through the peritoneal and muscular coats and down to and into the submucous coat, which is tough and dense and can be felt as such, and therefore recognised by the resistance it offers to the needle. Halsted recommends a square stitch, but the great merit of the operation is the stress which is laid on the sutures taking their hold from the tough submucous coat. (For Halsted's account of the operation see the *Bulletin of the Johns Hopkins Hospital,* vol. ii, No. 10, 1891, and the *American Journal of the Medical Sciences,* October, 1887.) In order to reach the two portions of bowel to be joined, an incision was made longitudinally in the left rectus, and the abdomen opened; it was then found that the two portions were so tied by adhesions that they could not be drawn out of the wound; the operation had therefore to be performed in the abdomen, which materially increased its difficulty. When it was completed, a short drainage-tube was inserted in the wound; a slight escape of fæces (a feculent discharge) occurred for a short time along the track of this drainage-tube, but before long it ceased, and the drainage-tube being removed the wound healed completely.

After this operation fæces passed through the anastomatic opening, and were discharged *per anum;* but all the fæces did

not go that way, some went past the Halsted opening and escaped at the artificial anus; here there was a considerable éperon, which practically made the mouths of the upper and lower bowels distinct; down either of these a finger could be passed and made to enter the Halsted opening, which just admitted a finger and felt like a ring.

Three months later an attempt was made to close by Lembert's sutures the upper of the two openings at the artificial anus; the result of this was that all the fæces passed through the Halsted opening, but a certain amount then passed not by the natural channel but externally at the opening of the lower bowel at the artificial anus; soon, however, the suturing of the upper opening gave way, and to completely close the artificial anus one had to choose between again attempting to suture the upper opening (and also the lower opening), and laying the artificial anus and the Halsted opening into one, closing over at the surface the large communication thus made. This latter course was decided on: a stout silk was passed down one opening through the Halsted ring and out again at the other opening at the artificial anus; this silk acted as a guide and helped to bring the deep parts into reach; later, the finger was used as a guide: the adjacent surfaces of bowels were divided longitudinally down to and into the Halsted ring, and the divided edges stitched together on each side; the two parts of intestine were thus thrown freely into one, and all that remained was to close the artificial anus by suturing the bowel together at the surface.

After this the fæces passed freely along the bowel to the anus, but a fistula formed large enough to admit a pencil, and here a small amount of fæces escaped.

An attempt was made to close the fistula but not with absolute success, for there still remains a minute fistula which will just allow the passage of a probe into (I believe) the bowel; hardly anything, however, comes along this sinus, and the bowels act normally *per anum;* the patient is now (fifteen months after the first operation) in good health.

Remarks.—This case might have been treated by excision of the growth and immediate suture and return of the bowel, and I do not say that that would not have been the right treatment to have adopted. I was deterred from it by various considerations, amongst them the result of two cases of excision of cæcum for malignant growth by Senn; one case recovered, the other died on the sixth day from septic peritonitis,

starting not from leakage at the line of junction (with Senn's plates), but from an extension of inflammation from an ulcer within the bowel.*

In order to avoid the danger of peritonitis in the present case, the bowel was kept outside till time had been allowed for adhesions to shut off the abdominal cavity. As a matter of fact the suturing did not hold, but it does not follow that it would not have done so had the bowel been within the abdomen. Even in the subsequent operation for making the anastomatic opening, the abdominal cavity was not laid freely open on account of the adhesions which had formed; moreover a small fæcal fistula, which formed and lasted for a few days after this operation, did not occasion peritonitis.

The failure of the suturing in the original operation I am disposed to attribute, in part at least, to a piece of hardened fæces becoming arrested at the line of suture, not from narrowing of the channel but from absence of peristalsis. The contents of the small intestine being more liquid than those of the large, the problem of suture is materially different in the two.

* *Journal of the Amer. Med. Assoc.*, June 14, 1890; Abst. in *Med. Chron.*, vol. xiii, p. 69

III.—*A Case of Gastro-jejunostomy.* By Leonard A. Bidwell. *Read October* 27, 1893.

I HAVE ventured to bring the following case before the Clinical Society, hoping that it will be of interest; for although the operation of gastro-jejunostomy has now been performed a large number of times, its merits do not appear to be fully admitted by all physicians. It seems wise, therefore, to publish every case where even temporary benefit has been derived from the operation. In my operation the union between the stomach and jejunum was effected by the method suggested by Dr. Halsted for lateral intestinal anastomosis; this method, I believe, is not much followed in this country, although it is scarcely less simple and certainly more secure than the operation by Senn's plates. Although the patient died within five weeks of the operation from exhaustion, his symptoms were completely relieved, and did not return. The following are my notes of the case:

A gentleman, æt. 69 years, came under my care on August 3, 1893. He was a wiry but rather emaciated man, complaining of severe epigastric pain. He had enjoyed good health all his life, but for the last six months he had suffered from epigastric pain, which became much worse after food; for the last six weeks these attacks have become very severe, and the pain, which is still much worse after taking food, especially solids, is relieved by vomiting. The vomiting is very frequent, and nausea is constant; he is now afraid to take any food, except a small quantity of liquid. He has lost a considerable amount of flesh, and the pain at night prevents him from sleeping.

On examination the abdomen is not distended, and there is no ascites. The liver is not enlarged. There is hyperresonance over the left lumbar and umbilical regions, showing dilatation of the stomach. Occupying the epigastric region in the position of the pylorus is a hard mass, which is slightly moveable, and extends upwards under the ribs and towards the left side. It is apparently about the size of a duck's egg. The abdominal parietes are moveable over it, but the superficial veins are considerably dilated. The lungs and heart are healthy.

The urine is normal, and the bowels act well. The vomited matter contains altered blood.

The nature of the trouble was explained to the patient and to his wife, and gastro-enterostomy was suggested with a view of giving temporary relief to the pain and sickness; no more radical operation was suggested on account of the size of the tumour and the age of the patient.

Nutrient suppositories were given alternately with nutrient enemata every four hours, starting at midnight, August 6; and no food was allowed by the mouth after that time.

On August 7 the stomach was washed out with boracic acid solution at about 11 A.M., and at 1 P.M. the operation was performed. The patient was given chloroform and ether by Mr. Tyrrell, to whom my best thanks are due for his care in the administration; Messrs. Abbott and Fisher kindly assisted me. An incision 3 inches long was made in the left linea semilunaris; the abdominal wall was very thin, and there was no bleeding. On opening the peritoneum some slightly turbid ascitic fluid escaped, and the stomach presented in the wound; the greater part of the organ was infiltrated with growth, which had apparently commenced at the pylorus; there was also some infiltration of the great omentum, and some very large glands were felt.

The transverse colon and omentum were pushed over to the right side, and a piece of small intestine hooked up. Some little time was lost in determining in which direction this piece of intestine should be followed in order to reach the jejunum, but finally the upper end of the gut was reached, and, after being brought out of the wound, was slightly twisted so as to ensure that the axis of the portion of the gut, when applied to the stomach, should be in the line of the peristaltic action. It was emptied and held in position outside the abdomen by one of my assistants, without using any kind of clamp; a portion of the anterior surface of the cardiac end of the stomach, which was free from disease, was also pulled out of the wound, and held in position close to the jejunum by the operator's left hand. Sponges were packed round the parts so as to shut off the peritoneal cavity.

Six quilt sutures were then passed in a row between the jejunum, half an inch from its mesenteric attachment, and the anterior wall of the stomach. No. 8 straw needles had been previously threaded with No. 9 silk, and a separate needle was used for each suture; the ends of each suture when passed were clamped with a pair of pressure-forceps. Great

care was taken to pick up and include in each suture some fibres of the submucous coat, as strongly recommended by Dr. Halsted. Three sutures were then passed at the ends of this row of sutures, and all twelve were then tied and the ends cut short. Six similar sutures were then inserted about five eighths of an inch in front of the former row, and each was clamped with forceps. An opening about one inch long was then made into the jejunum and stomach between the two rows of sutures. Some frothy mucus and blood escaped from the stomach, and the growth, which appeared to completely occlude the pyloric orifice, was easily explored by the finger. A point of suture was used to unite the mucous membranes of stomach and jejunum above and below, and the anterior row of quilt sutures were quickly tied; some boracic solution was allowed to flow over the part while the sutures were being tied. The anastomosis was now complete, so was dropped back into the abdominal cavity, and the incision in the linea semilunaris closed with silk sutures. The wound was dressed with cyanide gauze and wood-wool pads. The operation lasted just one hour (the actual anastomosis only taking twenty-five minutes); the patient bore it extremely well, there being no shock at all,—in fact, his pulse was better after than before the operation. A sixth of a grain of morphia was injected hypodermically on account of some pain, and nothing was given by the mouth except a little tepid water.

August 8.—He is very comfortable, and has not been sick once since the operation; he is taking ʒij of barley water with ℥ss of tepid water every hour, with either a nutrient enema or suppository every four hours.

August 9.—The temperature is normal, but the patient complained of some pain after peptonised milk, so this was discontinued; teaspoonful doses of Brand's essence were taken every four hours.

August 12.—Is taking plenty of nourishment by mouth (barley water, beef-tea, and Brand's essence). He has had no severe pain or nausea since operation.

August 15.—The temperature has not been above normal once since the operation. The wound was dressed, and the stitches removed. He is taking plenty of nourishment, including custard pudding, so the nutrient enemata and suppositories were left off.

August 19.—He seems very comfortable, and takes his food and sleeps well.

The patient gained strength and flesh till the end of the month, when he seemed to make no further progress. I allowed him to get up on August 30, and he went home on September 2. He was not taking his food very well, but complained of no pain or discomfort even after solids; he was able to sit up in a chair and walk a few steps.

His doctor wrote to me that the patient died simply from exhaustion a week after returning home, but that there had been absolutely no return of his old symptoms. When I saw him last, a month after the operation, I found that the growth had increased in size considerably.

Unfortunately no autopsy was allowed.

There are several points in this operation to which I wish to refer. A median incision is generally recommended, but in cases where the operator is able to decide beforehand that pylorectomy is impossible, an incision in the left linea semilunaris seems to me to be much more convenient.

In the greater number of cases of this operation the jejunum has been attached to the anterior surface of the stomach, but in order to prevent regurgitation into the stomach, which may occur when the patient lies on his back, a posterior opening has been recommended by Mr. Barker* and several French surgeons.†

In most of the recorded cases the jejunum has been dragged round the edge of the great omentum, but several cases have been reported in which an opening has been torn in the great omentum through which the gut is dragged; this latter method is supposed to prevent the liability to obstruction by kinking of the jejunum.

Since Senn's cases have been published, in nearly all the recorded operations approximation plates have been used; most of the French surgeons, however, still continue to use three rows of Lembert's sutures. Undoubtedly the employment of Senn's plates has shortened the operation very much when compared with the older method of intestinal suture, but the method suggested by Halsted for lateral intestinal anastomosis seems to effect a more satisfactory union without taking much longer in application. Dr. Halsted,‡ in his original paper, states that the anastomosis is easily completed in ten minutes; indeed, I, who had never used this mode of suture before, easily effected the anastomosis in twenty-five

* *Brit. Med. Journ.*, 1892, vol. i, p. 61.

† M. Terrier, *Mercredi Med.*, 1892, p. 636; M. Delageniere, ibid., p. 683.

‡ *Bulletin of Johns Hopkins Hospital*, vol. ii, No. 10.

minutes, and I feel sure that in a second case I could do it in a much shorter time. The special form of suture, namely, the quilt suture, has been adopted by several surgeons, but the chief point of Halsted's method is the inclusion in each suture of some fibres of the submucous coat, for Dr. Halsted maintains that this coat is the most resistent of all the intestinal coats, and that sutures passed through only the serous and muscular layers readily cut out. To pick up the fibres of the submucous coat without wounding the mucous membrane may, at first thought, appear rather difficult, but if a straight sewing or straw needle be driven vertically through the coats of the bowel with the pulp of the index finger, a sense of resistance will be felt when the submucous coat is reached; a few fibres of this coat are easily picked up by bringing the needle to the horizontal position and pushing it on.

In the anastomosis by Senn's plates the sutures pass through the coats of the bowel, so that when silk sutures are used these are apt to remain free in the opening, and so occasionally clog the passage. It is interesting to note, too, that the cases of subsequent closure of the opening which have been reported* have occurred after the use of Senn's plates. In most of the cases where Senn's plates have been used a row of Lembert's sutures have been added, so that probably as many sutures were used with the plates as in my case, when only twenty sutures in all were inserted.

Mr. Paul,† of Liverpool, has suggested a method of preventing contraction of the opening by strangulating the opposed surfaces of stomach and jejunum by means of two rings of bone passed into stomach and gut by separate incisions and tied tightly together. Some Lembert's sutures round the inosculation would also be necessary as a support, when the opening has sloughed. I do not know whether the method has yet been tried on a patient.

Mr. Mayo Robson ‡ also has recommended the employment of a reel-shaped bone tube which is fixed in position by two continuous sutures.

I do not think that any other case of gastro-jejunostomy has been done in this country by Halsted's method of sutures, but I find that Mr. Finney,§ of the Johns Hopkins

* Reported by Stansfield, Larkins, and Hawkins.
† *Liverpool Med.-Chir. Journ.*, July, 1892.
‡ *Med.-Chir. Trans.*, vol. lxxv, p. 407.
§ *Bulletin of Johns Hopkins Hospital*, May, 1893.

Hospital, has recorded a case operated on in this way. The patient lived fifteen days, and at the autopsy the opening was quite healed and patent.

There is a point about which little mention is made in most of the accounts of this operation—namely, that the loop of gut should be turned half round after being picked up, so that when fixed to the stomach, its axis is in the line of its peristaltic action. It may be that cases of regurgitation and of obstruction by kinking after gastro-enterostomy have been due to neglect of this point.

With regard to the after-treatment of these cases, it is now generally admitted that patients should be fed by the mouth from the day following the operation.

In the following table I have collected fifteen cases of gastro-enterostomy, performed in this country, which have been published since or were omitted from the table published by Mr. Jessett in vol. xxv of the *Transactions* of this Society. In only four of these cases was the operation immediately fatal, giving a death-rate of a little over 26 per cent.; adding to these the cases collected by Mr. Jessett, the death-rate becomes 28 per cent. Of course the cases in the table are only those which have been published; but as surgeons are more ready to publish successful cases than those which terminate fatally, it is quite possible that the actual death-rate may be higher.

As regards the ultimate prognosis of such cases, it will be noted that four of the cases (my own included) had died within two months of the operation. These I have put down as recoveries, for the deaths can scarcely be attributed to the operation; indeed, I am quite certain that a fatal result would have occurred in my case as soon without an operation, and my patient experienced great temporary comfort without any recurrence of his symptoms.

Cases of Gastro-enterostomy in England.

Surgeon.	Where published.	No. of cases.	Died.	Recovered	Remarks.
Page	*Roy. Med.-Chir. Trans.*, vol. lxxii, p. 373	1	—	1	Died 72 days later from diarrhœa. Ileum opened.
Paul	*Liverpool Med.-Chir. Journ.*, vol. xii, p. 255	1	—	1	Alive 1 month after operation, but symptoms suggested closure of opening.
Purcell	*Lancet*, 1892, vol. i, p. 1238	1	—	1	Died 1 month later.
Barker	*Brit. Med. Journ.*, 1886, vol. i, p. 293; 1892, vol. i, p. 63; 1893, vol. i, p. 847	3	1	2	One died 53 weeks after operation, the other 6 weeks after operation.
Allingham	*Clin. Soc. Trans.*, April, 1893	1	—	1	Died 5 months after operation from pneumonia.
Renton	*Glasgow Med. Journ.*, No. 38, p. 424	2	—	2	One died 6 months later, ? closure of opening; the other alive 2 months after operation, not cancer.
Robson	*Roy. Med.-Chir. Trans.*, vol. lxxv, p. 407	1	1	—	For obstruction after pylorectomy.
Jessett	*Clin. Soc. Trans.*, vol. xxv, p. 105	2	1	*1	*Pylorectomy at the same time.
Barron	*Lancet*, 1891, vol. i, p. 18	1	1	—	
Atkinson	*Brit. Med. Journ.*, 1890, vol. ii, p. 982	1	—	1	
Bidwell	—	1	—	1	Died 5 weeks later from exhaustion.
Total	. . . .	15	4	11	Giving a death-rate of a little over 26 per cent.
Cases collected by Mr. Jessett	*Clin. Soc. Trans.*, vol. xxv, p. 105	17	5	12	
Total	. . . .	32	9	23	Corresponding to a death-rate of 28⅛ per cent.

IV.—*Case of Disease of the Corpora Quadrigemina.* By Frederick Taylor, M.D. *Read November* 10, 1893.

HENRY B., æt. 4 years, was admitted under my care into the Evelina Hospital on March 5, 1891.

The child was the eighth of ten or eleven children, of whom two were born dead, and one, aged sixteen, is said to have died of consumption.

He had measles at two years of age, and whooping-cough at three. He has had no other illnesses, but has always been weakly, taking cold very easily. He was weaned at eighteen months old. There is no history of syphilis in his family nor of the congenital disease in his own person.

Four months before admission he seemed to be ill, would not eat, and his eyelids began to droop; both were equally affected. He continued quite sensible, and had no pain in the head, but since that time he has gradually "lost his strength." Until recently he continued to play about with other children, but fourteen days ago he was first noticed to stagger while walking in the garden; and the staggering has increased, so that he has been unable to stand or walk without support, and has crawled when left to himself.

The drooping of the eyelids has been worse the last fourteen days; for four days there has been pronounced inco-ordination, and the last two days he has been "unable to find his mouth with his spoon." He has appeared to see well; his speech has never been affected; he has never complained of any headache, and has eaten and slept well.

Present condition.—He is a fairly well-nourished, pale child, with slight beading of the ribs, and thickening of the wrists. Some glands under the jaw are enlarged. He has no headache, but cries out loudly at times. He is drowsy, but sensible; he speaks correctly, but very slowly. His gait is markedly ataxic; the feet are lifted well off the ground, thrown forwards, and brought suddenly to the ground, heels first. On attempting to stand, the legs are widely separated, and he stands alternately on the heels and the toes, oscillating thus backwards and forwards. The legs seem equally affected. He is unable to touch the tip of the nose accurately

with the point of his finger, or bring the tips of his forefingers together. There are marked oscillations of the head and neck in an antero-posterior direction. There appears to be no anæsthesia. The superficial reflexes are less marked on the left side than on the right; the knee-jerk is less on the right side, not exaggerated on the left; there is no ankle-clonus.

There is a nearly complete double ophthalmoplegia including double ptosis, more marked on the right side, and paralysis on both sides of the superior, inferior, and internal recti, and, as far as could be judged, of the superior and inferior oblique. There is some lateral nystagmus. The right pupil was dilated, reacting slightly to light but not to attempted accommodation; the left pupil was less dilated, also reacting to light but not to attempted accommodation. There is no loss of sensation in either eyeball. The child could undoubtedly see, but no accurate record of his power of vision was made. With the ophthalmoscope it was seen that both discs were clear; there was no neuritis and no choroiditis.

The heart, lungs, liver, spleen, and urine were normal. The pulse was 112, temp. 97·6°.

A few days later it is noted that his tongue is protruded evenly, and that there is no deviation of the soft palate; the lines on the right side of the face are more marked than on the left.

On March 11, though not spontaneously complaining of pain, he said, when asked, that he had pain, pointing to the posterior parietal region, and he cried out occasionally as if unconsciously. On March 17 it was thought that there was a little action of the internal recti. The ptosis became more marked, and he used to open his eyes with his fingers. Towards the end of the month he became very drowsy, and used to sleep all day. He did not speak so well, but he understood what was said to him. On April 4 he was semi-conscious, his arms and legs fell flaccid when lifted from the bed, he swallowed with difficulty, and his excretions were passed in bed.

By April 11 his pulse was weak and irregular, and there was slight Cheyne-Stokes' respiration. He was unable to swallow, and had to be fed by the nasal tube. On the 16th the right arm was flaccid, the left more rigid; both legs were flaccid. His motions and urine were passed unconsciously, and he had profuse sweating.

April 19.—He lies perfectly unconscious. His conjunctivæ are suffused and discharging. There is a little discharge from the left ear. Both pupils are dilated, especially the right. Nystagmus is present on the left side. The superficial reflexes are brisk on both sides, the deep are absent. Rhonchi were heard over both lungs. He is losing flesh.

From this time he gradually got worse; he was unconscious, with marked Cheyne-Stokes' breathing. The muscles of all the limbs were flaccid, but the face and hands twitched occasionally. Respiration became more shallow, hurried, and irregular; the pulse was weak; cyanosis increased. The child died on May 2. The duration of his illness was therefore about six months.

The temperature was subnormal until March 30, from which date in the evening it was as much as 99° or 100°, and on two or three occasions 102°, but the morning record was mostly 98°. Two hours before his death the temperature was 106·2°.

Unfortunately the death took place on Saturday, and the autopsy was not made until Monday afternoon, more than forty hours after death. The brain was then so soft that it was most difficult to ascertain the exact condition of the organ. After a general idea had been obtained of the localisation of the disease, the brain was put into spirit, with the view of hardening it throughout, and then making sections to show the distribution of the disease in more detail; but we were not successful in preventing the parts falling away from another, and the account I shall have to give of the morbid anatomy of this case is therefore not so satisfactory as I should like.

Two facts of the greatest interest in relation to the symptoms were, however, quite clear: one that the corpora quadrigemina were the seat of extensive disease; and the second, that the cerebellum was perfectly healthy.

On superficial examination, the brain showed some flattening of the surface, and bulging of the hemispheres at the sides. At the base the crura cerebri appeared to be of great breadth, with their inner borders meeting in the middle line; but on either side of the middle line, for a width of more than half an inch, the tissue was reddish grey, translucent, and gelatinous; so that this looked like a morbid transformation by tumour, or degeneration, of the much swollen crura cerebri, covering over and concealing the posterior perforated space. The corpora albicantia were visible in their normal position, but the third nerves were lost or torn away from their cere-

bral attachments. On removing the hemispheres and viewing the corpora quadrigemina from above, these bodies were seen to be much flattened, broader and more extensive than the normal, grey in colour, and gelatinous in appearance. There could be little doubt that this grey tissue was continuous with the grey substance on the inner side of the crura, but no attempt was then made by section to show this, for fear of losing the relation of the parts altogether. The optic chiasma was normal. The medulla oblongata seemed to be perfectly healthy; the cerebellum was quite normal; the spinal cord was unfortunately not examined. In the right orbit all the muscles supplied by the third nerve were atrophied, and the nerve and its branches could not be found. In the left orbit the nerves and their branches were present, and the muscles were fairly healthy.

Of the other viscera, the left lung presented adhesions all over; and a few tubercles were present in the lungs, liver, kidneys, and spleen. The posterior parts of the lungs were congested, and the anterior edges emphysematous.

I regret that the minute examination of the parts both by naked-eye sections and by the microscope has been most unsatisfactory.

The specimen was placed in Müller's solution to be hardened, but came out in such a friable condition that it was extremely difficult to get good sections for the microscope. Mr. A. H. Cheatle was good enough to spend much time over it, and he obtained a few sections which showed a rather large structure of cells, from which, and from its appearance it may be inferred that the change was glio-sarcomatous. But my efforts to ascertain accurately in the hardened specimen the exact distribution of the lesion as between the corpora quadrigemina and the basal portion of the brain were fruitless.

Only a little while before this case came under my care at the Evelina Hospital, I was reading in *Brain** a paper by Nothnagel on the diagnosis of diseases of the corpora quadrigemina, and I was led thereby at once to make the diagnosis as to the localisation of the disease, which, I think it will be allowed, has proved correct. Nothnagel's concluding words are these:—"In a given case in which the signs point to the existence of a cerebral tumour there are grounds for localising it in the corpora quadrigemina, or in the region of the corpora quadrigemina, if the following symptoms be present:—(*a*) An

* Vol. xii, p. 31, July, 1889.

unsteady reeling gait, especially if this appear as the first symptom. (*b*) Associated with this gait ophthalmoplegia existing in both eyes, but not quite symmetrically, nor implicating all the muscles in equal degree."

From various recorded cases (by himself, by Bristowe, Ferrier, Fischer, Gowers, and others), he comes to the conclusion that "unsteady gait is a constant symptom in disease of the whole quadrigeminal mass" (p. 29). He then discusses the question whether the ataxy is caused solely by the implication of the corpora quadrigemina, or by the pressure on the cerebellum and fourth ventricle, which has in some cases co-existed; and his decision is that the disease of the former bodies is of itself sufficient to produce inco-ordination and reeling gait; that the diagnostic value of the symptom, which of course is not pathognomonic, is increased by its appearance early in the case; and that this is further strengthened or confirmed by the "appearance of paralysis or paresis in the territory of the ocular nerves, especially of the nervus oculo-motorius." Such paralysis is ascribed by him to the simultaneous lesion of the nuclei of the oculo-motor nerves, which lie beneath the aqueductus Sylvii, and therefore in such close proximity to the corpora quadrigemina that they are extremely likely to be involved, either by compression or extension, in any lesion of the last-named bodies.

I bring forward my own case this evening as being for the most part, if not entirely, in accordance with, and therefore as confirming, Nothnagel's statement. The chief clinical symptoms were ataxy and a very pronounced ophthalmoplegia. The corpora quadrigemina were extensively diseased, as well as the inner portions of the crura cerebri, so that it may be fairly inferred that the nuclei of the third nerves were also involved. On the other hand, the cerebellum, which we know to be so often the seat of disease when ataxia results from intra-cranial lesions, was perfectly healthy.

It will be observed that Nothnagel makes certain restrictions as to the order of appearance of the symptoms and the extent of the ophthalmoplegia; namely, that the ataxia must appear first, and that the ocular paralysis must be asymmetrical. The object of the first is to anticipate the argument that in a given case the ataxy may be due to a secondary hydrocephalus; the second is formulated because, according to Nothnagel, the paralyses are generally more

unsymmetrical and incomplete than they are in cases of primary atrophy of the nuclei of the nerves.

These conditions were not strictly fulfilled in my case; at any rate, the drooping of the eyelids was noticed first, and the ocular paralyses were very general and very pronounced at the time that the patient came under observation.

V.—*Traumatic Arachnoid Hæmorrhage, with symptoms on the same side as the lesion.* By C. MANSELL MOULLIN. *Read November* 10, 1893.

T. C., a stevedore, 43 years of age, was admitted comatose into the London Hospital on May 30, 1893. While at work on a barge at 10 o'clock in the morning, he received a violent blow on the right side of his head from the hook of a crane which suddenly swung round. He was not stunned, and kept on at work until about 1 P.M., when he began to feel faint, and quickly became insensible.

On admission he was comatose, but not absolutely devoid of feeling. The only sign of injury was a hæmatoma over the right parietal eminence. The breathing was deep and noisy; the pulse 70, regular and full; the temperature 99°. The lips in expiration separated more widely upon the right than the left side; the face was slightly drawn to the left, and the facial muscles when stimulated contracted much more strongly upon the left side than upon the right. The pupils, when the lids were lifted, were evenly contracted; after exposure, the right dilated more than the left; both reacted very sluggishly to light. The muscles of the right arm and leg were rigid, especially those of the thigh and arm, and the patient could not be made to move the right arm. The left arm and leg, if pinched or pricked, were withdrawn at once, though slowly.

The symptoms taken together pointed to intra-cranial hæmorrhage, and as the muscular rigidity was more evident and extended over a wider area than the paralysis, the extravasation was probably in the region of the cortex. The difficulty was that the paralysis and the injury were upon the same side of the body, and that the accident was not of a kind that would cause contusion of the brain by *contre-coup*. It was thought, however, that there might be a fissured fracture starting from the seat of injury, running round the skull, and involving the opposite meningeal artery; and accordingly the patient was anæsthetised, a semicircular flap of scalp turned down from over the seat of injury, and the bone carefully examined, but nothing of the nature of a fissure could be found.

The next day there was slight improvement; towards evening consciousness revived sufficiently for him to recognise his wife; swallowing became more easy, and there was no increase in the paralysis though the urine and fæces were passed unconsciously. During the two or three days following there was no material change, the patient spent most of his time asleep, and when awake was only half conscious; the facial paralysis was a little less marked, but, on the other hand, when he was roused the loss of power over the right arm and leg was almost complete. Then delirium set in at night, coming on at intervals with periods of partial consciousness; and on June 7, eight days after the accident, he became very drowsy in the course of the afternoon. On that day it was noticed that he could not be made to use his right arm or leg at all, and that the rigidity was much less distinct—in fact, scarcely noticeable. There was ptosis of the right eyelid with decreased resistance to opening. The right pupil was very slightly larger than the left, and both were very sluggish. The left nostril moved with respiration, the right was still. The mouth was not drawn over to either side, but opened more widely upon the left than the right. The tongue when protruded deviated uniformly to the right. Both knee-jerks were present and excessive; there was slight ankle-clonus on the right side, and the plantar reflexes were well marked.

The next day, as the fits of drowsiness were becoming longer and deeper, and the breathing more and more stertorous, it was determined to explore the cranium upon the left side opposite to the seat of injury. Accordingly the patient was anæsthetised and a semicircular incision made from about half an inch above the external angular process to an inch above the mastoid down to the bone, and a circle of bone removed from over the fissure of Rolando, just below the bend. On the dura mater being exposed, its colour appeared normal, and it did not bulge up into the wound. When it was incised, in doing which a rather large vein was pricked and had to be tied, the brain bulged up at once and began to pulsate, but as there was no sign of bruising or of extravasation, the circle of bone was replaced and the wound sutured. The patient died twenty-four hours afterwards, the pulse becoming more and more rapid, the breathing very quick and noisy, and the temperature, which had been normal until the evening before, running up to 109°.

At the post-mortem examination the skull was carefully

examined, and no trace of a fracture or fissure could be detected. There was no extravasation between the dura mater and the bone, but under the dura on the right side, between it and the arachnoid, was a large black clot covering the greater portion of that hemisphere. It was nearly three quarters of an inch thick over the lower end of the fissure of Rolando, and from there gradually thinned off in all directions, but it reached nearly to the falx above, on to the occipital lobe behind, and to the clinoid processes below. It did not extend beneath the tentorium nor to the opposite side. A gentle stream of water washed it cleanly off the surface of the arachnoid, leaving this intact and the brain deeply cupped but otherwise uninjured. The actual spot from which the hæmorrhage came was not made out, but as the clot was firmly adherent to the dura mater over the course of the posterior division of the middle meningeal artery, so that it could not be separated from it without tearing it away, in all probability it came from there. It certainly did not come from the sinuses. Both sides of the brain were carefully examined by horizontal and then transverse slicing, down to the medulla. The vein that had been tied the day before marked the trephine opening; but neither under this, nor in the deeper part of the brain, was there the smallest trace of contusion or extravasation to be found.

The chief points of interest in this case are the way in which the hæmorrhage was occasioned and the fact that the whole of the symptoms were on the same side as the injury. Though the actual rupture was not found, there can, I think, be no doubt that the blood came from one of the smaller branches of the middle meningeal artery, immediately under the spot upon which the blow was received. The extent of the hæmorrhage, which was much more considerable than that which usually takes place when the main trunk gives way at the angle of the parietal bone, is accounted for by the fact that there was less resistance than when the dura mater has to be detached from the bone. The artery itself appeared healthy, not unusually tortuous or dilated, and there was no degree of atheroma in the other arteries that were examined. The whole of the symptoms occurred on the same side as the injury; there was never any suspicion of spasm or paralysis on the opposite side; in other respects they were exactly what might have been expected from such a lesion. The decussation of the pyramids was unhappily overlooked; it may not have been present; such cases have been recorded,

though I believe in nearly all of them the decussation has taken place, although at a lower level. This, however, does not affect the clinical fact, which has been noted on a good many other occasions, that the brain lesion and the symptoms may occur on the same side of the body; and that therefore, when the symptoms of local compression are well marked, it is thoroughly justifiable, if nothing is found upon the usual side, to explore the corresponding region on the other one.

VI.—*Case of Syphilitic Tumours of the Spinal Cord with symptoms simulating Syringomyelia.* By C. E. Beevor, M.D. *Read November* 10, 1893.

PETER S., æt. 50, gardener, married, was admitted into the National Hospital for Paralysed and Epileptic, Queen Square, on September 5, 1892. He had served in India as a soldier, and had dysentery followed by liver complaint and typhus. He has had gonorrhœa but not syphilis, and has always been temperate. Family history was good.

The history, as taken by Dr. Bowman, the house physician, was as follows:—Up to July 1, two months previous to his admission, the patient was in his usual health, when two days after cleaning out some flooded rooms and getting very wet, he noticed the left leg beginning to drag and feel weak; at the same time he had numbness of the right knee. Within a few hours the left arm was noticed to be weak. The next day he took to his bed. The left arm began to waste a week after the onset, and it and the left leg have become gradually weaker. He had no pain till a week after the onset, when it came on in the left shoulder, elbow, and wrist, and he also had numbness of the left thumb and the radial border of wrist and forearm. The numbness of the right knee spread up to the groin fourteen days before admission, and subsequently up to the level of the right nipple. No trouble with the bladder and rectum.

On admission the movements of the muscles of the eyes and face were normal, the pupils were unequal, the right being larger than the left, but both reacted to light and to accommodation.

The upper limbs were wasted, but especially the left. He could perform all movements with the right upper limb, though with diminished force. In the left upper limb there was very great wasting of the upper half of the pectoralis major, the serratus magnus, the supinator longus, the muscles of the forearm, and the intrinsic muscles of the hand; and all the other muscles of the upper limb were wasted, but to a less degree. With regard to movements, he could just raise the arm to the horizontal position, but no further; he could flex the elbow better than he could extend it; extension and

flexion of the wrist and fingers were almost absent; the movements of the thumb were limited to slight abduction and adduction, and he could only just separate the fingers.

The muscles of the neck were wasted, but the movements of flexion and extension could be performed, though with much diminished power.

The erector spinæ acted well, and he could just raise himself up in bed by the recti abdominis with slight assistance.

In the lower limbs there was some general wasting, but no difference between the two sides. He was able to walk with assistance, dragging the left leg. He could perform all movements with the right leg, and with good power. On the left side flexion and extension of the hip and knee were very feeble, and he could only just raise the heel off the bed; there was also only very slight movement in the ankle and toes.

Pain.—A constant "rheumatic" pain was complained of; as shown in the diagram (Fig. 1), it was felt chiefly in the back between the third and fifth dorsal spines, spreading towards the right shoulder, over the whole of the left scapula and the left shoulder, and down the outer half of the left arm, the radial border of the forearm, and involving the whole of the left thumb.

Tactile sensation was normal everywhere.

Sensation for pain (Fig. 2). There was complete loss of sensation to the painful impressions of a pin-prick over the whole of the right leg and the right half of trunk, front and back, sharply defined by the middle line, and extending upwards in front to the level of the nipple and the fourth rib, and along a horizontal line round the axilla to the fifth dorsal spine behind; at this upper line there was an area in which the analgesia was not constant. Over the genitalia the analgesia was confined to the left side, though it was not very definite over the glans penis. Over all this analgesic area a very slight touch was described as numbed, but there was no loss of perception.

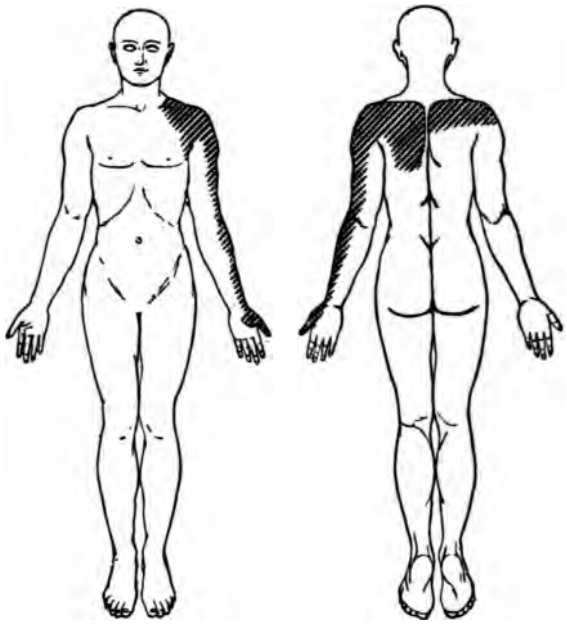
On the left side, on the radial border just above the thumb there was slight blunting to a pin-point, but no tactile anæsthesia anywhere on this side.

Sensation for heat (Fig. 4) was absent over the whole of the right side corresponding to the area loss of pain, except that the zone of uncertainty was larger and extended from the umbilicus to the fourth rib; also in the foot he usually called

everything warm. On the left arm, over the area on the radial border heat-sensation was lost.

The *sensation for cold* (Fig. 4) was lost over the same area as for painful impressions, only that it extended higher, up to the third rib in front, and to the scapular spine behind (see diagrams).

FIG. 1.—Area of subjective pain.



Tactile localisation and the sense of position were always correct.

The deep reflexes were increased, but the elbow-jerk and the knee-jerk were much more on the left than the right, and left ankle-clonus and rectus-clonus were present.

The superficial reflexes were present and equal on either side.

No curvature of spine, and no pain or tenderness except over the third and fifth dorsal spines.

No other physical signs or symptoms.

On September 14 patient complained of diplopia occurring occasionally. He gradually became worse, and on September 24 he was unable to turn himself in bed. The pain in the

FIG. 2.—Area (shaded) of loss to painful stimuli.

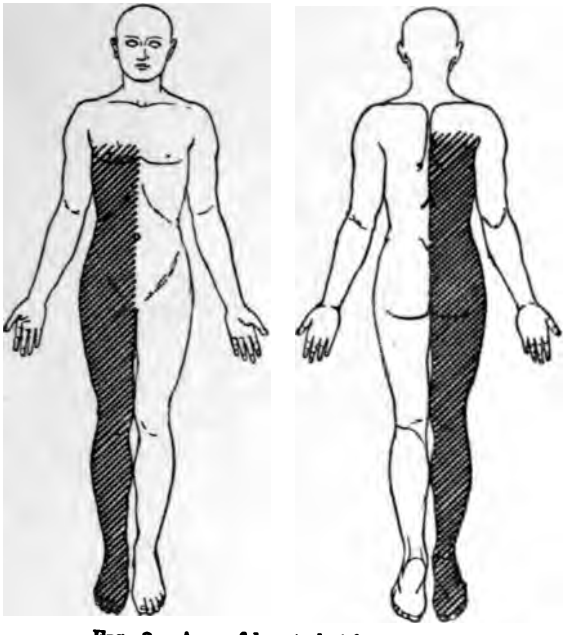


FIG. 3.—Area of loss to hot impressions.

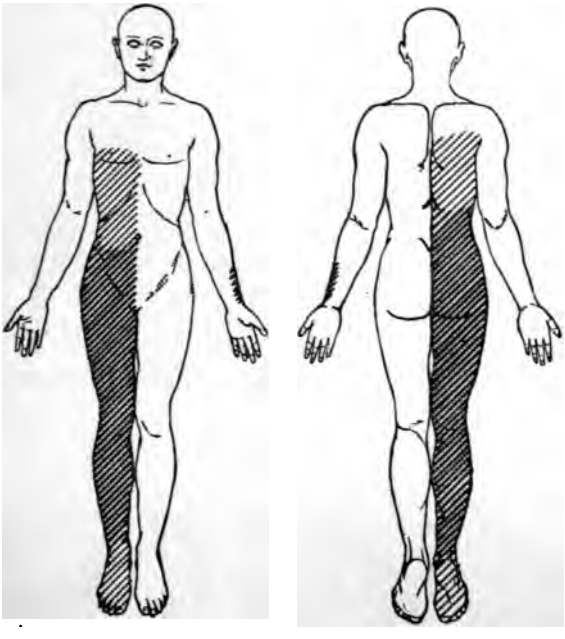


FIG. 4.—Area of loss to cold impressions.

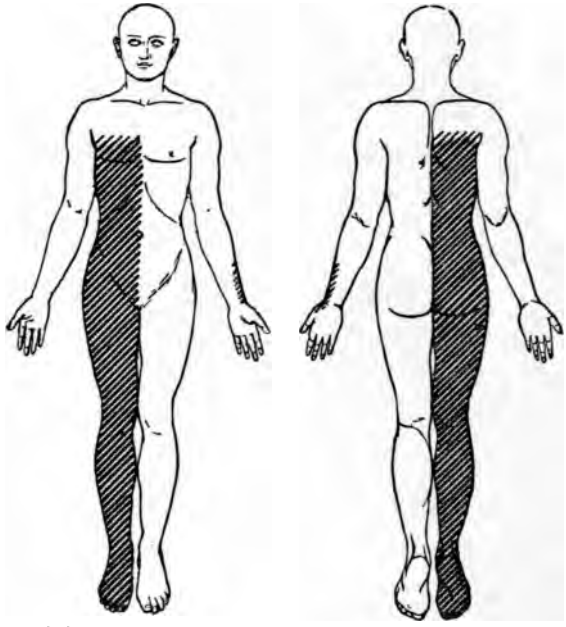
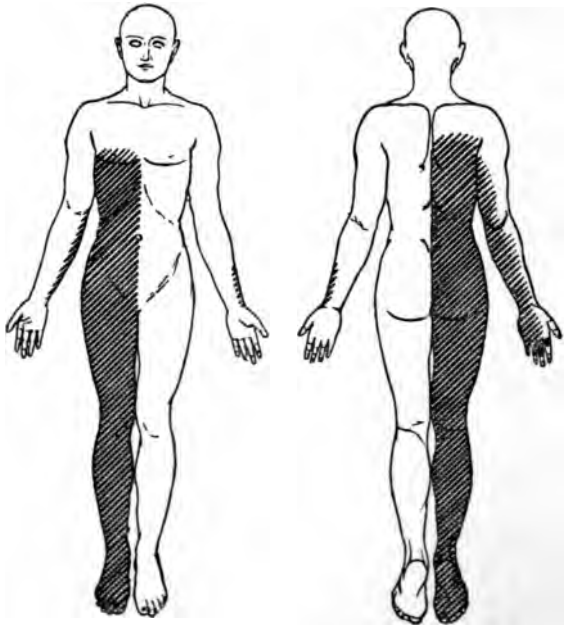


FIG. 5.—Subsequent area of loss to impressions of pain and temperature.



left arm increased and spread to the other fingers and the back of the arm, and also down the right arm from the shoulder to the wrist.

All the muscles of the left arm except the deltoid and biceps had wasted very much, and all movements were lost except slight flexion of elbow and abduction of shoulder.

The right arm was also more wasted, and movements of the fingers, thumb, and wrist were very feeble, and extension of elbow and adduction of shoulder were almost absent.

He could not raise the body into the sitting posture, and could hardly raise the head off the pillow.

The sphincters were now affected with dribbling incontinence of urine and some loss of rectal control.

Sensation.—The loss to pain and temperature had spread upwards to the right upper limb, and there was blunting to pain and temperature along the right ulnar border of the forearm, the back of wrist, and the dorsum of all the fingers (Fig. 5).

The respiratory movements were noticed to be less on the left side of thorax. Marked fibrillar tremors were seen in the deltoids and pectorals, and their irritability to percussion was increased.

Electrical reactions.—Right upper limb: all the muscles reacted to faradisation, the intrinsic muscles of the hand requiring a stronger current, but all gave a reaction with the constant current without the reaction of degeneration. On the left side there was no response to faradisation in the flexor brevis pollicis, interossei and hypothenar group, while the opponens and abductor pollicis, the supinator longus and triceps only reacted to strong currents; there was no reaction to galvanism in the muscles which did not react to faradism, but the other muscles did not show any definite reaction of degeneration.

The reaction of the muscles of both lower limbs was normal.

On September 28 paralysis of the right sixth nerve was noticed.

On October 12 he was much improved in the sensation of the right arm, and the area of analgesia retracted to the condition previously observed, viz. to the ulnar border of the forearm and the back of the hand; also in the right side of the trunk and leg he could appreciate pin-pricks, also on the inner aspect of the thigh, but not on the foot and on the outer side of the thigh.

Incontinence of urine became better, and the pain in the arms was less severe, but a bedsore had formed on the inner condyle of the left humerus.

On October 27 he was worse again and became delirious at night. Internal strabismus of the right eye was very marked. Ankle-clonus was observed on the right side.

On November 2 he became more drowsy with subnormal temperature, 94° and 95° in rectum, and died on November 14; the temperature, which had remained subnormal, rising to 102° on this day.

Notes of post-mortem by Dr. Colman.—The cord was hardened by being suspended in Müller's fluid for three months before being cut into. At the end of that time, the cord, which had been almost diffluent at the time of the autopsy, was found to be hardened, but the cervical region was so friable that the upper two inches were useless for purposes of examination, and sections of the rest of the cervical region were unsatisfactory and fragmentary.

The spinal dura was found to be somewhat thickened throughout the cord, and in the cervical region it was involved at some levels by the tumours to be described later.

On opening the dura several tumours were seen on the surface of the cord, the two largest of which were in the cervical region, one occupying the left lateral and antero-lateral region, involving both anterior and posterior nerve-roots, and the other the right lateral region, involving only the posterior nerve-roots. They were flat, moulded to the cord, and extended from the third cervical to the second dorsal roots, but were comparatively small after the seventh root.

Similar smaller tumours were found in the pia mater, involving the left seventh dorsal posterior root, and in the cauda equina involving two nerve-roots.

Microscopic sections of these tumours show them all to have the same characters. Their edge is composed of highly cellular connective tissue like granulation tissue, while the centre is firm, fibrous, and almost homogeneous in appearance, with here and there foci of caseation. The arterioles showed marked endarteritis obliterans.

Two of these tumours, however, had in addition characters more like malignant tumours, viz. the one on the left side of the cervical cord and the one in the cauda equina, for the first directly invaded and infiltrated adjoining structures, the pia mater and the cord, and the second involved and was destroying the structure of two adjacent nerve-roots.

The cord itself, besides being pressed upon by the new

growth, showed much myelitis. The vessels were greatly enlarged and distended with blood, there was great increase in the number of neuroglia cells, and the nerve-fibres were swollen and stained very faintly with Weigert's hæmatoxylin.

The myelitis extended down to the level of the second dorsal root. Below this the cord was normal, except for a well-marked descending degeneration in the left crossed pyramidal tract.

Nerves.—The median nerve showed slight neuritis; the sciatic nerve was normal.

Pons and medulla were healthy.

Brain.—On cutting into it, a small firm nodule was found at the junction of the temporo-sphenoidal lobe with the frontal, growing in the white matter. Three other nodules were found in the brain situated subcortically.

The vessels at the base of the brain were much diseased, and sections showed characteristic endarteritis obliterans, and thickening of the middle and outer as well as of the inner coat. On the wall of the basilar artery was a small but typical gumma.

The *Liver* had several gummata showing typical appearances on microscopical section.

The history of the case with the rapid onset after exposure to cold and wet, with weakness of the left arm and leg together with numbness in the right leg, seemed to point to a myelitis affecting the left half of the cord, and the subsequent wasting and loss of electrical excitability seemed to localise the myelitis at the lower end of the brachial enlargement of the cord. The subsequent development of loss of sensation to pain and temperature in the whole of the right leg and of the right half of the trunk up to the level of the fourth rib, suggested that the disease was in the interior of the cord, while the pain in the left shoulder shooting down the left arm pointed to irritation of the nerve-roots on the left side, from external pressure.

During recent years, mainly through the labours of Prof. Charcot and his school, great attention has been paid to the significance of loss of the sensation of heat, cold and pain, without any corresponding loss of tactile sensation, and it has been shown that this condition is associated with cavities in the spinal cord or with central gliomata. This has been explained by the theory that while tactile impressions are conveyed by the white columns, impressions of pain and temperature are conducted by the grey matter. In the present case this condition of sensation made it probable that the disease might be

caused by a central glioma affecting the grey matter of the cord, and seemed to negative the symptoms being caused by a tumour outside the cord and pressing on it at the lower end of the brachial enlargement.

Against the disease being a case of syringomyelia was the unilateral condition of the symptoms, the short duration of the disease (four and a half months), and, with the exception of the bedsore on the left elbow, the absence of trophic lesions. It is unfortunate that the soft condition of the cord, both before and after hardening, prevented a very exact description being given of the brachial enlargement, but it seems probable that the symptoms were caused by the tumour on the left side of the brachial enlargement and adjacent parts (third cervical to second dorsal roots) pressing on the cord, thus producing the paralysis and wasting of the left arm; but whether the analgesia of the right side was caused by the left-sided tumour, and why there should have been such profound loss to pain and temperature, and none to tactile impressions, it is difficult to say.

The progressive nature of the symptoms was such as would be caused by the gradual pressure of a growth external to the cord, and from the fact that the hand-muscles were first and most affected it is probable that the tumour began from below and grew upwards.

If this be the correct explanation, it seems possible for a tumour pressing on one side of the cord from without to cause loss of sensation to pain and temperature without affecting that for tactile sensation, for in this case there was no evidence of disease confined only to the grey matter of the cord.

The affection of the sphincters, which did not occur till September 24, was probably caused by the myelitis set up by pressure on the brachial enlargement.

VII.—*Observations on a case of Myxœdema treated by administration of the thyroid gland of the sheep, with special reference to changes occurring in the urine.* By WILLIAM M. ORD, M.D., and EDMUND WHITE, B.Sc. *Read November* 24, 1893.

A C., a married woman aged 38, was admitted to Charity J. Ward, St. Thomas's Hospital, on April 19, 1893. Her father was living and healthy; her mother, who had always been delicate, died at the age of forty-five of smallpox. She had lost several brothers and sisters in early life, some of them of "water on the brain." Apart from this there was no family history of nerve trouble or tuberculosis. She had had ten children and five miscarriages, but the latter had occurred at irregular intervals among her confinements. She had always lost a quantity of blood at her confinements, and had twice had "flooding." Her catamenia had always been profuse and of long duration. She had had smallpox at the age of nine. In 1890 she had had "rheumatic fever," and about that time had had an illness of three months' duration, of which the main symptoms were vomiting, hæmatemesis, anorexia, and pain in the region of the stomach. She had "inflammation of the brain" nine years before admission, followed in the two succeeding years by similar attacks of a milder character. Her last child was born three years before admission.

She had never enjoyed good health since the "rheumatic fever," but she dates her chief symptoms from 1888. Her memory had gradually failed; she had felt weak, and had noticed swelling of the face, of the bridge of the nose, of the hands and feet. She had been losing her teeth, and had often found her mouth full of "blood-clots" on waking in the morning. She had noticed slowness in her movements for two or three years, alteration in speech for two years. She felt the cold weather acutely, and had had cramps in the legs for some time past. She had a history of hallucinations after a confinement seven years previously, for two years her hearing had been impaired, her skin had been "peeling," and her hair falling out for one year. She had also had falls, owing to her knees suddenly giving way.

On admission the patient was a well-nourished woman, with a waxy complexion, and a well-marked circumscribed flush on the cheeks. The features presented the appearances characteristic of myxœdema. The general aspect was placid but dazed.

The lungs and heart were normal, the chest well formed.

The edge of the liver could be felt one inch below the costal margin in the nipple line; the spleen could not be felt. Nothing abnormal was detected in the abdomen; the urine was of sp. gr. 1020, acid, contained a large quantity of phosphates, but no albumen, mucin, or sugar.

The skin was coarse and somewhat dry over the whole body; there was fine desquamation over the forearms, chest, and back.

The hair was dry, rough, and scanty, short and broken in front, longer behind; the eyelashes were unchanged, but the eyebrows scanty.

The teeth on the whole were decayed and broken away, with the exception of the lower front teeth. The tongue was protruded slowly, broad, slightly coated, and tooth-marked; the soft palate and uvula were thickened.

The fingers were very broad, the back of the hand large and thick, the skin dry except in the palm. The toes were large and coarse, without œdema. There were pigmented patches on the legs in the course of the veins.

The thyroid gland could not be felt. There were supraclavicular enlargements.

The speech was slow and emphatic, the voice nasal and monotonous, and there was a tendency to garrulity.

The movements generally were slow, there was no apparent loss of power, and no dropping of the head. The knee-jerks were present.

During the first week of residence in hospital, before the commencement of treatment, she had cramps in her hands and some bleeding from the gums. She was dull and depressed, and slept a good deal. Her weight was 8 st. 5 lbs.

On the sixth day after admission the patient was placed on a mixed diet of fish, eggs, milk, potatoes, and beef-tea. The quantities of these taken in every twenty-four hours were carefully estimated and recorded from the 25th April to the 1st of May. The daily allowance was duplicated, a portion exactly corresponding to that administered to the patient being subjected to chemical analysis in respect of nitrogen. The urine was measured daily, and also subjected

to analysis. Tables showing the daily quantity of solids and liquids taken, and the quantity and composition of the urine, are here appended (Tables I and II).

TABLE I.—*Food.*

Date.	Daily consumption of							Daily ingestion of nitrogen in food. grammes.
	Bread. oz.	Milk. fl. oz.	Beef-tea. fl. oz.	Fish. oz.	Tea. fl. oz.	Custard. oz.	Eggs.	
Apr. 25	1¼	40	—	1¼	15	—	2	9·58
„ 26	2½	30	10	—	10	—	1	8·36
„ 27	3¼	30	—	1¾	20	—	1	8·20
„ 28	2½	20	10	1¾	20	2¾	1	8·86
„ 29	3¾	29	8	2	8	3	1	10·78
„ 30	5	28	8	2	8	3	1	11·00
May 1	9½	37	—	2¼	17	—	1	11·75
„ 2	5	35	—	2	16	4	1	11·25
„ 3	1¼	36	—	1¾	16	—	1	8·65
„ 4	1	16	16	—	16	—	2	7·02
„ 5	2	26	8	2¼	16	—	1	8·83
„ 6	2¾	33	—	2¼	16	3¼	1	10·10
„ 7	3¼	26	—	—	18	—	1	6·19
„ 8	1¾	26	8	2¼	16	3	1	9·81
„ 9	2½	33	—	2¼	18	4	1	10·29
„ 10	3¼	26	—	2¼	16	3	2	9·51
„ 11	3¼	25	—	2½	20	4	1	9·30
„ 12	3¼	17	8	2	17	2¼	1	8·24
„ 13	4¾	25	—	1¾	26	4	1	9·21
„ 14	5½	25	—	3	16	1	1	9·30
„ 15	5¾	25	—	2¾	24	4	—	9·67
„ 16	6¾	24	—	2¼	20	3	—	9·08
„ 17	4¾	24	—	2½	20	4	1	9·59
„ 18	5	24	—	3	20	4	1	10·04
„ 19	6	24	—	2¾	26	3	—	9·20
„ 20	5	24	—	2¾	26	—	1	8·43
„ 21	2	24	—	2½	20	3	1	8·38
„ 22	6½	32	—	3¼	24	2¼	—	10·90
„ 23	5½	32	—	2	26	3	1	10·51
„ 24	3¼	24	—	1½	16	3½	1	8·19
„ 25	5	24	—	1½	16	—	—	6·91
„ 26	5¾	32	—	2¼	17	3½	1	10·95
„ 27	7	24	—	2½	26	4	1	10·28
„ 28	5¾	24	—	1¾	20	—	1	7·92
„ 29	5	24	—	1½	22	3¼	1	8·65
„ 30	4½	26	—	2	26	3	1	9·13
„ 31	8½	24	—	2¼	20	4½	1	10·73
June 1	6¾	24	—	1¾	24	4	1	9·66

TABLE II.—*Urine.*

Date.	Daily volume.	Sp. gr.	Total solids.	Ash.	Organic matter.	Urea.	Total nitrogen.	Phosphoric acid.	Chlorine.	Acidity.*	Treatment.
	c.c.		grms.	grms.	grms.	grms.	grms.	grms.	grms.	grms.	
Apr. 26	1332	1·010	27·45	8·79	18·66	11·83	6·39	2·64	1·75	—	
„ 27	992	1·015	28·77	7·94	20·83	16·72	9·17	3·28	1·76	—	
„ 28	978	1·013	25·23	7·43	17·80	13·36	7·29	2·84	1·91	—	
„ 29	595	—	22·94	5·36	17·58	12·75	6·50	2·50	1·37	—	
„ 30	624	1·018	25·71	5·87	19·84	14·65	7·12	2·92	1·44	2·39	
May 1	1049	1·013	26·85	8·82	18·03	15·92	7·88	2·52	2·05	1·72	Commenced.
„ 2	850	1·015	27·54	7·48	20·06	15·49	7·85	2·81	2·44	2·79	
„ 3	1503	1·010	29·16	8·12	21·04	14·95	7·91	3·38	1·97	3·60	
„ 4	1588	1·009	29·15	10·80	18·35	14·02	7·11	3·41	2·48	2·71	
„ 5	1134	1·016	33·34	8·55	24·79	18·59	9·85	4·20	1·13	3·64	
„ 6	907	1·017	31·12	7·44	23·68	18·34	9·78	3·09	1·29	2·40	
„ 7	1134	1·016	32·66	8·85	23·81	18·76	10·80	3·18	1·81	2·86	
„ 8	1473	1·014	37·48	10·31	27·17	21·12	12·37	3·89	2·61	3·25	
„ 9	964	1·020	36·07	9·06	27·01	21·57	12·42	4·05	2·16	3·95	
„ 10	1332	1·016	39·64	8·74	30·90	24·03	13·06	3·97	1·66	4·03	
„ 11	1446	1·017	43·98	10·27	33·71	27·19	14·37	4·48	2·26	4·10	
„ 12	1077	1·017	39·56	9·70	29·86	25·82	13·57	3·38	1·72	3·73	
„ 13	964	1·020	40·74	8·89	31·85	25·52	14·02	3·57	1·52	3·28	
„ 14	964	1·022	42·00	9·60	32·40	27·39	14·30	3·99	2·09	3·55	
„ 15	1332	1·016	41·84	11·46	30·38	25·92	13·80	3·60	2·60	3·11	
„ 16	1191	1·018	44·53	10·36	34·17	29·33	15·67	3·29	2·41	3·75	
„ 17	993	1·019	37·71	8·73	28·98	23·71	12·78	2·92	2·18	2·75	
„ 18	1247	1·018	43·89	10·35	33·54	26·66	14·32	3·44	2·44	3·62	
„ 19	1106	1·020	40·69	9·40	31·29	25·90	14·40	3·05	2·56	3·14	
„ 20	964	1·019	32·77	6·36	26·41	21·35	11·74	3·03	1·37	3·16	
„ 21	879	1·022	36·56	7·03	29·53	24·83	13·63	2·90	1·25	2·75	

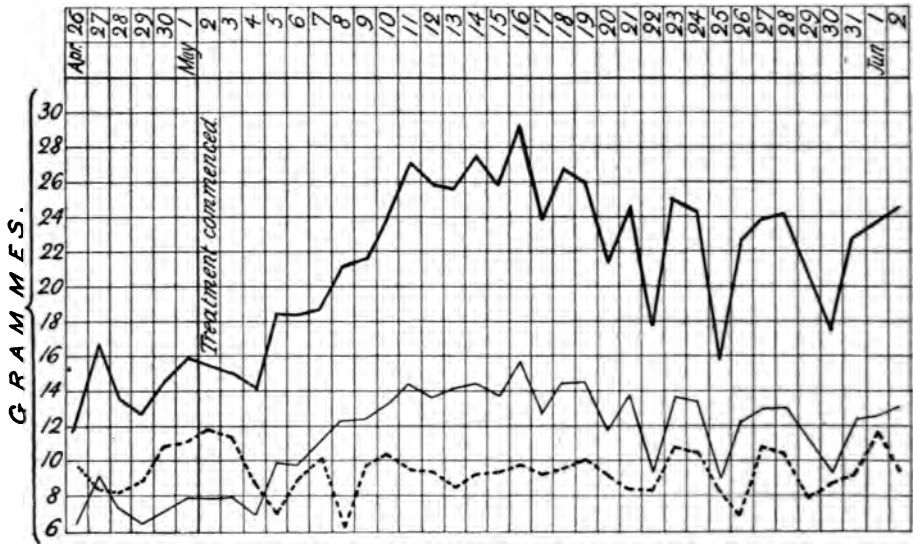
„ 22	882	1·023	27·69	5·61	22·08	17·61	9·13	2·20	1·27	2·13	
„ 23	992	1·021	38·03	8·14	29·89	25·06	13·61	3·89	1·27	3·63	
„ 24	1191	1·017	37·48	9·05	28·43	24·39	13·34	3·53	1·65	3·23	
„ 25	1021	1·015	28·47	9·39	19·08	15·87	8·72	2·18	2·54	1·35	
„ 26	879	1·021	34·36	7·21	27·15	22·79	12·06	2·88	1·56	3·05	
„ 27	964	1·020	37·39	7·13	30·26	23·93	12·95	3·08	1·67	3·16	
„ 28	1219	1·018	39·87	10·20	29·67	24·19	13·09	3·41	3·07	3·12	
„ 29	1531	1·014	—	—	—	—	—	—	—	—	
„ 30	879	1·015	27·49	5·36	22·09	17·22	9·35	2·29	·86	2·38	
„ 31	1134	1·020	39·47	10·66	28·81	23·38	12·54	3·40	2·98	2·71	
June 1	1134	1·020	38·30	8·73	29·57	23·73	12·70	3·36	2·21	2·86	
„ 2	1418	1·015	42·24	11·06	31·18	24·57	13·10	3·35	3·22	2·86	

* In terms of oxalic acid.

The weight of the body was 8 st. 4¼ lbs. on the 25th April, 8 st. 4¾ lbs. on the 29th.

The temperature during this period ranged from 96·2° to 98° F.; the average of the six days, two observations being taken daily, was 97·2°.

Chart illustrating changes in excretion of urea and nitrogen after treatment.



Excretion of Urea.
Excretion of Nitrogen.
Ingestion of Nitrogen.

On the 1st of May the administration of the thyroid in the form of glycerin extract of the sheep's gland was begun. Twenty minims, equal to one sixth of a gland, were given daily up to the 25th of May.

The measurements and estimations of the food and urine were regularly continued, with the results set forth in the accompanying tables (Tables I and II).

Details of analysis of urine.

Total solids.—5 c.c. of urine were evaporated over a water-bath, and the residue dried for one hour at 100° C.

Ash.—The total solids, obtained as above, were incinerated and the ash weighed.

Organic matter.—By deducting the amount of ash from the amount of total solids, we obtained the series of figures reported as "organic matter."

Urea.—This was determined by means of sodium hypobromite, the volume of nitrogen being corrected for temperature and pressure.

Total nitrogen.—Kjeldahl's method was employed for this determination.

Phosphoric acid.—Determined volumetrically by means of uranium acetate.

Chlorine.—Determined volumetrically by means of silver nitrate.

Acidity.—Determined by decinormal sulphuric acid.

Discussion of results of chemical analysis.

It will be seen by reference to Table III that an increased excretion of all the constituents of the urine, of which determinations were made, occurred after the commencement of treatment. The average daily increase of organic matter, 8·86 grammes, is almost entirely accounted for by the corresponding increase in urea, 8·15 grammes. The difference, ·71 gramme, expresses the average daily increase of all other organic constituents of the urine. The increased excretion of organic substances would therefore seem to be proportionately distributed among the organic constituents of the urine.

TABLE III.

Average daily excretion of urine and its constituents.	Before treatment.	After treatment.	Increase after treatment.
Volume . . . . . c.c.	928	1127	199
Total solids . . . . grms.	26·16	36·49	10·33
Ash . . . . . „	7·37	8·84	1·47
Organic matter . . . . „	18·79	27·65	8·86
Urea . . . . . „	14·21	22·36	8·15
Nitrogen . . . . . „	7·39	12·08	4·69
Phosphoric acid . . . . „	2·78	3·33	·55
Chlorine . . . . . „	1·71	2·01	·30
Average daily ingestion of nitrogen in food . . . . . grms.	9·46	9·30	—

The figures given for nitrogen when compared with those for urea in Tables II and III are valuable as showing that the increased nitrogenous excretion was almost entirely in the form of urea, and that no other nitrogenous substance or substances, normally present in urine or foreign to that fluid, were excreted in any considerable quantity as a result of the thyroid treatment. It will further be seen from Table III that the average daily amount of nitrogen ingested after treatment was slightly less than before treatment commenced, although the nitrogen excreted was increased in the ratio of about 3 : 5.

The difference between the average daily excretion of total organic matter and urea before treatment was 4·58 grammes; after treatment it was 5·29 grammes. It is therefore evident that no important excretion of non-nitrogenous organic matter resulted from the administration of the thyroid extract, since the average increase of organic matter, other than urea, was only ·69 gramme daily. It is worthy of note that the ratio of total nitrogen to urea underwent a slight change. Before treatment it was as 7·39 : 14·21, or as 1 : 1·92. After treatment the ratio was as 12·08 : 22·36, or as 1 : 1·85.

The results of this research, so far as the composition of the urine is concerned, may be thus stated:

1. The thyroid extract has a diuretic action.
2. The elimination of nitrogen is largely increased.
3. This increased elimination of nitrogen is almost entirely in the form of urea.

With regard to the inorganic constituents, the determinations of phosphoric acid and chlorine have shown only a slight increase after treatment; this result might have been expected from the increased nitrogenous metabolism. The supposition that the chlorine might be diminished, as in some forms of pyrexia, has not been borne out.

It is our intention, on another occasion, to determine the elimination of sulphur in the urine. This may enable us to discover whether the excess of urea in the urine, after thyroid treatment, is derived from proteid substances, or from less complex sulphur-free compounds stored up in the organism which the myxœdematous subject is unable to excrete or convert into urea.

The changes in the clinical record of the patient following the administration of the thyroid were as follows:

1st. The weight of the body fell to 8 st. 3¼ lbs. on the third day, and continued to fall till the seventh day, when it

Fig. 6.

Fig. 7.

was 7 st. 12 lbs.—a total loss of 6¾ lbs. After this it fluctuated from day to day, the lowest record being 7 st. 7¾ lbs. on the 30th of May, the highest 7 st. 12¾ lbs. on the 10th of May. On the day previous to the patient's leaving the hospital, June 2nd, her weight was 7 st. 9¾ lbs.

2nd. *Temperature.*—The observations of ten days beginning with the fourth day after the commencement of treatment show, as compared with the record of the days preceding treatment, a definite increase of body heat. The average of the twenty observations was 98·1° after the administration of the thyroid, as compared with 97·2° before. The highest temperature, 100·0°, was reached on May 13, but so long as the patient was under observation her temperature was higher than before treatment.

3rd. *General symptoms.*—On the day after the first administration of the thyroid extract the patient began to complain of headache, subsequently of pain in the eyeballs, which were tender when pressed. On the third day she had pains in the legs, sufficient to interfere with her sleep. By the seventh day the pains had much diminished, and the general signs of myxœdema were melting away. The bulk of the face and body had diminished, the skin was moist and soft, and there was a commencement of desquamation in the skin of the arms and legs. A day or two after, the lethargy, so marked at the time of her admission, was exchanged for a certain degree of activity. She began, in fact, to take a marked interest in her surroundings, but the pains in the head and limbs recurred from time to time. She had also for some days bleeding from the gums. It is noted on May 24 that a crop of new hairs had appeared on the scalp, and a day or two after the notes state that her features were now thin and well formed, that her skin was moist and supple, that her speech was normal, and her movements brisk. She left the hospital on June 3, an active woman. She presented herself at the hospital three weeks later, so much further changed for the better as to be almost beyond recognition. Her hair, though short, was abundant and healthy, her features were sharply defined, and her bearing active. The photographs which accompany the report show the extraordinary change in her appearance occurring between May 21 and June 24. (See Figs. 6 and 7.)

Dr. Ord's remarks.—My experience of a case under treatment in St. Thomas's Hospital last autumn led me to

expect that some important changes in the urine might be looked for in myxœdema after treatment by the administration of the thyroid gland. A patient, previously under observation for three years, was admitted during the first cold weather of the autumn in a state of great weakness and exhaustion. She seemed, in fact, to be almost dying, her condition being the outcome of a steady downward course, greatly accentuated when the weather was cold. I gave her the whole thyroid gland of a sheep daily for four days. On the fourth day she was attacked with violent headache, excruciating pains in the limbs, and vomiting. Her temperature, previously subnormal, rose to 104·2°. The vigorous administration of the thyroid was at once diminished, but not abandoned. Under the steady use of doses of half a gland twice a week she made good progress, and went on to recovery. It appeared to me that the comparatively large doses at first given had produced a pyrexia—something like, for example, that which attends pneumonia. No careful chemical examination of the urine could be made on this occasion, but I resolved that when opportunity occurred I would institute such a systematic investigation as I record to-day. It was already known that the excretion of urea was generally diminished in myxœdema. I was prepared to find it increased after the thyroid treatment, in connection with the increase in the quantity of urine noticed by various observers. I had also expected to find a decrease in the excretion of chlorides, and indications of excessive metabolism of proteids. The question of larger excretion of mucin was also of importance. The treatment adopted in the present case was, as will have been seen, much less active than in that to which I refer, and no corresponding pyrexia was produced. It is, however, a point of great interest to note that the excretion of nitrogen was greatly increased. There was actually a little increase in the quantity of excretion of chlorides, but not sufficient to justify a definite inference. As regards this point, the excretion of mucin and the indications of the disintegration of proteids, further observations are required, under larger doses of the remedy than were prescribed in this case.

Observations by Mr. White.—The glycerin extract used in the present case was prepared from fresh sheep's glands, the menstruum being equal parts of glycerin and chloroform water. Twenty minims—the daily dose exhibited—corresponded to $\frac{1}{6}$ of a gland. In preparing an extract for internal

se, I consider the employment of chloroform water decidedly referable to the addition of carbolic acid, salicylic or boric cid, &c. The flavour and odour of raw meat are effectually overed, and an extract so prepared will keep some months rithout decomposition or deterioration if stored in a well-losed bottle in a cool place.

In adjusting the dosage, one may take as a standard a ertain weight of glandular tissue or a fractional part of a land. I have always adopted the latter method. This is pen to the objection that the weight of individual glands is able to considerable variation, but in preparing an extract rom a number of glands at one time this objection is re-noved.

Moreover, it may be expected that the glandular tissue rom various animals varies in activity, so that, by taking a lefinite weight of tissue as a standard, uniformity cannot be ecured. Until we are able to isolate the active principle of he gland in a fairly pure condition, this difficulty cannot ntirely be surmounted. For clinical purposes, however, the ractional method has yielded uniformly satisfactory results, nd it is to be commended for its simplicity.

In the case of patients who have been cured, but in whom here usually seems to be a tendency to relapse when treatment s discontinued, the glycerin extract is not so suitable. For hese, one of the several dry preparations now available will e found most convenient. In the numerous cases which ave been treated at St. Thomas's Hospital, the patients, after lischarge, were supplied with the thyroid powder which I lescribed in the *British Medical Journal*, February 11, 1893, . 289. The process of manufacture of this will be found n detail in the *Pharmaceutical Journal*, September 2, 1893, . 194. Three grains of the powder correspond to $\frac{1}{6}$ of a gland, nd one or two such doses weekly have been found sufficient o maintain the patient in health.

For private practice, also, the dry extract or powder form s in most cases to be preferred. Divided doses in powder, ill, or tablet form may be safely placed in the patient's pos-ession, thus removing the risk of overdoses. The glycerin xtract in its undiluted form is a potent remedy; overdoses ight easily result from accident or carelessness in measur-ng the small quantity for each dose, and dilution to the rm of a "mixture" would render necessary the addition of n undesirable amount of preservative.

VIII.—*Case of Endemic Hæmaturia due to the presence of the* Bilharzia hæmatobia : *second supplementary report.* By H. HANDFORD, M.D. *Read December* 8, 1893.

MORE than four years have elapsed since the previous supplementary report.* The patient is in good health, but still passes a little blood occasionally at the end of micturition. A few weeks ago he sent me a specimen of urine, and I found that it contained blood and a small number of ova of Bilharzia in which the embryos were living and active.

The patient has long since become tired of medication. He did not continue the treatment by male fern mentioned in the previous report. The disease is running a natural course. He has spent the past four years chiefly in England, but partly in the northern portion of the United States of America, where, according to Osler, the *Bilharzia hæmatobia* is not found. There is, therefore, no probability—scarcely even a possibility—of re-infection after he left the Cape, especially as he has been particularly careful in the selection of drinking-water since he learned that infection took place through that medium. Consequently, unless reproduction of the parasite takes place within the body without the intervention of any intermediate host, the adult parasites must now have reached the age of over eight years—a very advanced age for such lowly organised animals.

One of the most recent text-books states "a great majority of the cases recover," "the disease often disappears by the time of puberty." This patient has been placed under most favorable conditions, has a very robust constitution, and leads a very regular and temperate life; but the disease has already lasted eight years. It is true the symptoms are now so slight as not to call for treatment, and to be easily overlooked; but the ova can be found at any time. Dr. Prospero Sonsino, of Pisa, states that "its life-history is less complicated than that of the digenetic trematodes; *it requires an intermediate host,* and undergoes a metamorphosis, but *there is no alternation of nor asexual generation. . . . . Several kinds* of aquatic Arthropoda may act as efficient intermediate

* *Clin. Soc. Trans.*, vol. xx, p. 240, and vol. xxii, p. 424.

hosts, whilst molluscs seem to have nothing to do with its life history."

Either the duration of life of the parasite is much greater than was supposed, or direct reproduction must sometimes occur without the intervention of an intermediate host.

"The larval phase of Bilharzia found encapsuled in the intermediate host is, in a biological sense, different from the encysted cercaria phase of the typical distomes, insomuch as it is a direct encystment of the embryo; and not, as in the case of the cercaria of the distomes, the encystment of the asexually generated progeny of a redia developed from an embryo distome."

May not this encysted stage, therefore, be passed through and development be completed within the body of the original host? May not the ova be deposited in the veins of the pelvis? May not some of the ova find their way into the tissues, pass through the encysted stage there, and then reach the veins of the portal system to complete their development? So the vicious circle would be completed.

IX.—*A case of Recurrent Venous Thrombosis continuing over two years.* By HENRY HANDFORD, M.D. *Read December* 8, 1893.

THE case I am about to relate is one of some rarity and much difficulty. There is little or no mention of such cases in the medical literature which is readily accessible, though I believe they are not altogether undescribed.

On September 7, 1891, a lacemaker, æt. 37, was admitted into the General Hospital, Nottingham, under my care. For several years he had been out of work a good deal, and consequently badly fed. He is tall, gaunt, and cachectic-looking. There is a scar on the penis, and on two occasions recently (six and sixteen months ago respectively) he has suffered from a swelled testicle. He has been fairly sober, and has never had any serious illness.

About fifteen weeks before admission he got wet through several days in succession, and had to leave his work on account of pain and swelling in the right ankle and the calf of the right leg. A week ago pain commenced in the left leg, which is now worse than the other. His temperature was 102° F., but it soon fell to normal, though his pulse remained quick and small. All the signs and symptoms of thrombosis of both femoral veins were present, and the thrombosis gradually spread up to the iliac veins on both sides. The left leg was the worse of the two, and was greatly swollen and œdematous, as well as very painful. Improvement was so slow, his appearance was so cachectic, and the pains about the back and the pelvis were so severe, that for some time I thought he must have a malignant tumour in the pelvis, probably in the sacrum or the left iliac bone. But no growth made itself manifest.

At this time his syphilitic affection seemed to be quiescent, while his anæmia was so extreme as to suggest the possibility of pernicious anæmia. Apart, however, from his recovery (incomplete, it is true) the course of his disease has not been that of pernicious anæmia. Still, under the circumstances he was placed upon a course of arsenic and iron, under which he very slowly improved. By the second week of November he was able to get up. The swelling of the legs had greatly diminished, but the pains about the pelvis and in the back

continued, and the thrombosed iliac veins could be felt on deep pressure. The enlargement of the superficial abdominal veins, which had been gradually increasing, was very marked when he stood. The superficial epigastric veins on both sides were nearly as thick as the little finger, and very tortuous. The current in them was distinctly upwards. I think it is probable that the common iliac veins, as well as the external, and possibly also the commencement of the vena cava inferior, were thrombosed. There was some reason for thinking, at a subsequent period, that small branches of the mesenteric veins also became thrombosed.

In September, 1892, he was readmitted with chronic indurated ulcers on each leg. The superficial veins were varicose, but the ulcers appeared to be due to his syphilis more than to the state of the veins. They healed quickly under rest and mercury. There was an extensive erythematous blush over the leg on admission, but it soon subsided. He was ordered a Martin's bandage for each leg, and made an out-patient.

On November 17, 1892, he was again admitted, pain having commenced in the right thigh a week previously. The note in the case-book runs—"There is thrombosis and phlebitis of the right internal saphena vein from the knee to the groin. It can be felt as a painful cord, and there are some inflamed lymphatics showing as red lines. On the left side the condition is similar, but less marked. The ulcers on the legs remain healed." On this occasion he continued in the hospital three months. He was again admitted, April 19, for a few weeks, during which time he had two or three separate attacks. The course they run is as follows:—Without apparent cause pain is felt in some part of the lower extremities. A hard knot or induration appears in the subcutaneous tissue in the course of one of the smaller superficial veins, and is tender to the touch. The skin grows red and painful, and the tissues around the vein become infiltrated and indurated. The process lasts a week or ten days, and ends in resolution. In this manner almost all the superficial veins of the legs and of the lower part of the abdominal wall have been affected. In some of them the circulation is restored eventually; in others the vein remains obliterated. The attacks are not due to injury, or to standing or walking, since they come on while he is confined to bed. About the time that some of the small veins of the lower part of the abdominal wall were affected he suffered from deep pains in the

abdomen and pelvis, together with occasional attacks of diarrhœa, which led me to suppose that some of the mesenteric veins might be involved. He has received most benefit from iodide of potassium and mercury, and next from iron and arsenic. But no treatment has hitherto checked the recurrence of the disease. He has no heart or kidney disease. The pulse is 80 per minute, and of low tension. The urine is free from albumen and of normal sp. gr. His general health is much better now than eighteen months ago, but there is still some œdema of the legs after standing, and he complains of great weakness. He still continues as an out-patient, and while this report is in progress (September 6, 1893) he has just developed a fresh patch of thrombosis in the left iliac region of the abdomen. During the past two years he has never been fit to work, though he can walk about. In that time he has had about thirty separate attacks of venous thrombosis.

The ætiology of this case is very difficult to unravel. Stagnation of the venous current from obstruction of the iliac veins and of the vena cava may have something to do with the later recurrences. It cannot account for the primary attack, nor do I think it a sufficient explanation of the later ones. Otherwise, from the frequency of blocking of the femoral and iliac veins, *recurrent* thrombosis of the superficial veins of the lower extremities should be a very common affection. But it is not.

His radial and temporal arteries are not much thickened, nor can I find any other evidence of arterio-sclerosis, though his syphilitic infection would render such a condition probable. But even then the extension of that process to the larger veins—phlebo-sclerosis—is not common, at any rate to a marked degree. That it is sometimes found to a very advanced degree the case which I read to this Society last year shows. But the clinical course in that instance was quite different. There was no pain, no redness, and no thrombosis.

The present case bears some resemblance to gouty phlebitis, but is more persistent and less amenable to treatment. And, moreover, there is absolutely nothing in his occupation, his habits, or in the course of his disease to suggest gout.

The only explanations which seem at all plausible, though they are in my opinion very inadequate, are—(1) That the first attack was induced by starvation and anæmia, the exciting cause being exposure to cold and wet, and that the sub-

sequent ones were due to venous stagnation. In that case thrombosis and varicose veins should be far more frequent.

(2) Or that the whole is due to the influence of the syphilitic poison.

(3) A third possible suggestion is that at the primary attack the lymphatics were obstructed as well as the venous trunks, and that since then the lymph and waste products have been taken up by the venous radicles instead of by the lymphatics.

The late Dr. Wooldridge* showed that the injection of lymph and chyle into the blood was followed by intra-vascular clotting, a great tendency to hæmorrhages, occasionally marked fever, and a remarkable delay in clotting of the blood when withdrawn from the body. This he called fibrinogen intoxication. So also the ligature of the femoral vein of a dog produces no dropsy; but if previous to the ligature some of the lymph fluid and fibrinogen are injected into the blood, the most severe œdema of the leg, sometimes accompanied by hæmorrhages, is produced.

* "Auto-infection in Cardiac Disease," *Brit. Med. Journ.*, Feb. 9, 1889, p. 318.

X.—*Cases of Osteo-arthritis with subcutaneous fibroid nodules, and one case with fibro-gelatinous exudations and Raynaud's disease.* By G. Newton Pitt, M.D. *Read December* 8, 1893.

OUR recognition of subcutaneous nodules in England is comparatively recent, dating largely from the publication of the paper by Drs. Barlow and Warner in 1881 (1 *). Since that time a number of cases have been recorded by various authors, and with but few exceptions the views put forth by these authors in 1887 have been followed.

These are that (1) the nodules are indicative of acute rheumatism; (2) they occur almost always in children and young adults (4½—19 years); (3) they are not painful; (4) they recur in crops which usually subside within two months; and (5) they are of serious import, because they are often associated with actively progressive heart disease.

Rheumatism is undoubtedly the most common association with the nodules. There is, however, a considerable body of evidence that the nodules also occur in connection with osteo-arthritis, syphilis, influenza, &c. Dr. Howard, in *Pepper's System of Medicine,* refers to their presence in osteo-arthritis; and Dr. Fagge notes among the less common symptoms of osteo-arthritis the presence of fibrous nodules at a distance from the joints,—as, for instance, among the muscles of the arms or forearms.

Case A. *Osteo-arthritis; innumerable subcutaneous fibroid nodules over the joints and tendons of the fingers and toes, over the ears, lower jaw, scalp, and clavicle; diffuse indurative exudation in sheaths and fascia; phthisis; Raynaud's disease affecting the extremities, ears, and tongue; herpes zoster.* (Shown as a living specimen in April, 1893.)—Anne E., æt. 24, laundry work, married; has had one miscarriage at three months, and one child, which only lived a few months.

At the end of November, 1892, she had synovitis in her left knee, with severe pain; previous to this she had enjoyed good health.

Two weeks before Christmas her hands became very painful, and within a few days she noticed that exposure to a chill, as in passing from one room to another, made them white or

* See "Literature," p. 64.

livid. After Christmas the left hand became more painful, and soon a diffuse swelling appeared over the whole of the dorsal surface of the hand and fingers; the skin became very tense and shining. A week later the swelling in the hand had disappeared, but that near the phalangeal joint persisted.

In January, 1893, extreme hyperæsthesia of the fingers developed.

During the spring the fingers became somewhat flexed, owing to the loss of movement in their joints. At the same time numerous subcutaneous nodules appeared on the upper extremities, and one over the lower jaw.

The following notes were made in May, 1893.

Left thumb.—First joint swollen, some movement; second joint scarcely any movement; surface swollen, pink and shiny. Fibroid subcutaneous nodules present on each side of the proximal end of the last phalanx, which appears pointed owing to the enlargement of the joint.

Index finger.—Fibroid nodule on the flexor tendon in the palm. Metacarpo-phalangeal joint normal; first joint slightly swollen, movement fair; second joint enlarged, but little movement; indurated condition of the flexor surface of the finger. Tip shiny, hyperæmic, and pointed.

Second finger.—Ganglion on sheath near wrist. Metacarpo-phalangeal joint swollen, nodule on dorsal tendon; first joint swollen; second joint swollen, skin shiny, no movement, indurated flexor surface.

Third finger.—Flexor tendon in palm contracted; first joint, swollen nodule on the flexor tendon; second joint swollen, red and shiny, nodule on flexor tendon.

Fourth finger.—Metacarpo-phalangeal joint normal; first and second joints swollen, but little movement.

The fingers are only slightly flexed. The last is abducted from the fourth finger by half an inch at the extremity, and is more flexed than the rest. She is unable to flex her fingers except at the metacarpo-phalangeal joints.

Right thumb very hyperæsthetic. Very slight power of movement in the metacarpo-phalangeal joint. First joint swollen; nodules on both the inner and outer sides. Second joint: the whole of the flexor surface is indurated, swollen, and painful. Fibroid nodules, one on the dorsum and one on each side of flexor tendon.

Index very painful. Nodule on the dorsum of the hand. Metacarpo-phalangeal joint swollen. First joint very swollen,

the whole finger indurated, hidebound, and powerless. Nodule on the inner side of the flexor tendon, and also in palm of hand. Second joint, no movement, skin shiny.

Second finger.—Two nodules on the palm of the hand, much swelling of metacarpo-phalangeal joint. First and second joints: nodules on the flexor surface of each; no movement. The whole finger indurated and powerless.

Third and fourth fingers.—Metacarpo-phalangeal joints not swollen. Nodules on the flexor surface; the other joints swollen, and the surface indurated and shiny.

The right hand is much more useless than the left. The fingers are not quite in contact, but are slightly flexed. The hand cannot be closed owing to the fixation by fibro-gelatinous exudation of the finger-joints. There is a small ganglion on the back of the hand. The feet are not affected. Synovitis of both knees, which are distended with fluid. An old fracture into the left elbow-joint, which is painful on movement. Subcutaneous nodules over both condyles of the humerus, and two on the ulna about two inches down. One of these latter is a quarter of an inch across, and is softer than the rest.

Right arm.—Nodules over the condyles of the humerus, the head of the radius, and a string of them along the edge of the ulna. One over the pisiform bone and one in front of the shoulder. Two small diffused subcutaneous nodules on the forehead above the nose, which have been very painful. There is a string of minute nodules along the lower jaw on both sides, and one on the right side of the neck. Numerous minute and exceedingly painful nodules along the margin of the nose and ears.

For the last few weeks, when she has gone from a warm room her hands, feet, ears, and tongue have become affected with asphyxia, and been exceedingly painful. The tongue becomes white, and feels to her swollen. At other times it is not painful, and she can move it; but during an attack, if she attempts to eat, the jaws become so painful that she is quite unable to do so, but this condition passes off as the tongue recovers. There is some tuberculous consolidation of the right apex of the lung, which is in a quiescent condition. The pulse is 144; the first apical sound is accentuated, but there is no bruit. The urine is free from albumen, is turbid with urates, but without excess of pigment. At no time has there been any evidence of any paroxysmal hæmoglobinuria, and the attacks of symmetrical asphyxia have not been associated

with any changes in micturition, nor with any change in the appearance of the urine.

The indurated condition of the thumbs and fingers referred to above was most marked in the left hand. It was due to a diffuse subcutaneous fibro-gelatinous exudation producing a hidebound condition, which might to the touch recall the idea of sclerodermia. She was treated with arsenic and cod-liver oil, with warm and stimulating applications locally. Later on she tried alkalies and quinine and salicylate of soda without benefit.

During the summer a few nodules developed on the tendons of the toes, and the feet became so painful, she was hardly able to get about at all. The indurations on the hands and fingers increased considerably.

After the patient left the hospital she had an attack of herpes on her left side, which was painful for a month. The fibrous nodules commenced to disappear in August, and now the majority have greatly diminished or disappeared.

November, 1893.—She has less pain in her feet, and is able to walk much better; all the nodules but one have disappeared. Her fingers are flexed at all the joints, especially the second displaced to the ulnar side; the terminal phalanges are much thinned, and she is unable to move any but the thumb and the index finger, and these but slightly. Two nodules remain on the flexor surface of the wrist, but none on the hands, none on the body or arms, and only one or two on the lower jaw. There is still a large amount of the fibrous exudation on the flexor surface of the fingers and palm of the hand along the tendon sheaths. She often has attacks of asphyxia of the tongue in wet weather, and on the left side more than the right, when it becomes very anæmic and firmer than normal. The hands are very frequently, during the day, livid or white with each change of temperature. The ears are only affected occasionally.

Case B. *Osteo-arthritis with fibroid nodules.* (Shown as a living specimen on November 24, 1893.)—Sarah D., æt. 50. Twenty-three years ago acute arthritis for three months. For many years the hands have been deformed, and at times there are subacute attacks of inflammation affecting many joints.

Present condition.—Typical osteo-arthritis with deformity of many joints.

Right hand.—Terminal phalanges flexed, middle joint over-extended, metacarpo-phalangeal joints enlarged and the fingers bent towards the ulnar side, wrist enlarged. Imme-

diately above the olecranon there is a dense fibroid, irregular, subcutaneous nodule, half an inch across; and two inches below, there is another projecting mass of similar character one inch across. The former has been three years in forming, and the latter eight months. Sometimes they are very painful, at other times they are not so troublesome. On the palmar surface opposite the middle joint of the second finger is a third subcutaneous fibroid nodule, $\frac{1}{8} \times \frac{1}{4}$ inch.

Left hand.—The terminal phalanges of first, second, and fourth fingers are flexed. The wrist and metacarpo-phalangeal joints are enlarged, but there is no ulnar displacement of the fingers. The patient is unable to flex the middle joints of the fingers in either hand. On the inner and dorsal surface of the terminal joint of the third finger, and on the radial and palmar side of the terminal joint of the thumb, there are small projecting, freely moveable, subcutaneous, hard fibroid nodules, the size of peas.

The left knee-joint and the right ankle are considerably enlarged, and grate on flexion.

She is the mother of sixteen children. The family have always been poor, but latterly the husband has been out of work for some time, and they have had very insufficient food. Pulse 85. The heart and lungs are normal. The skin of the fingers perspires freely, and is glossy at the tips.

Case C. *Osteo-arthritis with fibroid nodules.*—Emma K., æt. 37, married, two children, youngest six years of age.

In good health until November, 1891, when she was laid up in bed for six weeks with subacute arthritis affecting her left heel, her hip, and finally many joints. The pains in the joints have continued on and off ever since. The pains in the joints are worse between the menstrual periods, and are relieved at those times. The condition is one of multiple synovitis with enlargement of several of the finger-joints, especially of the first joints on the first and second fingers of the right hand and of the index finger of the left, and to a less extent of the wrists. During the summer she had moveable fibroid, painful subcutaneous nodules on the inner side of the last joint of the thumb, on the outer side of the last joint of the index finger, and on the flexor surface of the second phalanx of the first and second fingers of the right hand.

September, 1893.—On the left hand there are nodules opposite the second joint of the first and second fingers; on the feet there are several nodules on the inner side of the

metatarsal bone of the great toes, and on the dorsal surface of the second phalanx of the third and fourth toes on the left and of the fourth toe on the right. These nodules have been so painful that for a long time she was unable to get about. The knee-joints were distended, and there is synovial grating on movement, which is also present in the shoulder-joints, especially the left.

The condition of the joints and the amount of pain has varied, but the swelling of some of the joints and the pain have never disappeared.

In September the nodules had almost disappeared from the feet, and since then those on the hands have become much smaller. The pulse was somewhat increased in rate, varying between 80 and 90, and the temperature was raised to 99°, and reached 100° on two occasions. There was a basic functional systolic bruit.

The long duration of the arthritis—two years, the swelling of the finger-joints, and the grating in the knee and shoulder-joints indicate an undoubted osteo-arthritis of the multiple synovitis type.

November.—Under treatment at home the patient's condition has improved. There are now nodules opposite the last joints of the right thumb, and of the first and second fingers on both hands, on the great, third, and fourth toes on the left side, and on the fourth toe on the right.

I am indebted to Dr. A. E. Garrod for the notes of the following case.

Case D. *Osteo-arthritis following influenza with numerous subcutaneous nodules.*—Edward C., æt. 39; June 26, 1890. No family history of joint troubles. Fifteen years ago he had a slight attack of rheumatism, with slight swelling and pains in the joints. No history of chorea or of gonorrhœa.

Influenza twenty-three weeks ago; two weeks later pains in back, abdomen, and afterwards in joints. He was in bed seven weeks under Dr. Taylor, of St. Peter's Road, Mile End; the joints were red, shiny, and slightly swollen; he sweated profusely. The pains shifted from joint to joint, and have never completely gone away. Nodules have been forming since two weeks after the joints were affected.

Numerous nodules over scalp, forehead, elbows, palmaris, extensor tendons, knees (large), &c., which are curiously tender.

Osteo-arthritis of hands with muscular atrophy; shoulders, hips, knees, jaws, and feet affected. Recently freckles have

appeared on the back of his hands. Heart apex in the nipple line, first apical sound not pure.

Dr. T. Wallace Anderson (2) reports the following :—Mrs. S., æt. 50, with typical rheumatoid arthritis of fifteen years' duration, without any history of acute rheumatism. There was no cardiac disease. There have been for ten years small subcutaneous nodules on the fingers and toes, and larger ones over the ulna and patella.

Dr. Payne pointed out, at a discussion at the Pathological Society in 1883 (3), that subcutaneous nodules were frequently seen in chronic rheumatoid arthritis. He had seen many cases in which they were present in considerable numbers; they were larger than those occurring in children. He raised the question as to whether they occurred except in the neighbourhood of inflamed joints. (In the present cases this was undoubtedly so.)

Mr. Hutchinson and Dr. Mahomed referred to similar cases. Mr. Hutchinson said he had shown such a case at the International Medical Congress, and had long known of their existence.

Sir Dyce Duckworth (4), in vol. xvi of the *Transactions* of this Society, published a case of subcutaneous nodules in a woman aged twenty-four with rheumatoid arthritis of eight years' duration. There were cracklings on moving the joints, and several of the finger-joints were swollen. There was no history of rheumatic fever. The nodules had been present for fourteen months.

Cases of subcutaneous nodules with syphilis.—Lailler (5) described numerous small painful subcutaneous tumours which have appeared in syphilitic patients under treatment by iodide of potassium, but which disappear when the iodide is suspended.

Dr. Stephen Mackenzie (6), Sir Dyce Duckworth (7), and Dr. Kingston Fowler (8) have also recorded cases.

Subcutaneous nodules with fibrinous exudation following influenza.—Dr. Walters (9) reported a case of fibrinous exudation around the finger-joints and in the fasciæ of the hands, which limited the movements of the fingers. There were also subcutaneous nodules about the finger-joints. These developed in a man aged thirty-four after an attack of influenza.

Nodules also develop from other causes probably, which

are at present ill defined, as in the following case, reported by the late Dr. Hadden (10), of a boy aged twelve, who, after a sore throat, developed numerous subcutaneous nodules about his knees, elbows, and on his scalp and back. There was no history of rheumatism, and no heart disease.

The view taken of such cases as those brought forward this evening is largely determined by our definition of osteo-arthritis.

If we take Dr. Ord's view that osteo-arthritis is not a disease, but merely a symptom common to a number of conditions after gout, rheumatism, &c., we might conclude that the cases I have brought forward are rheumatic in origin, because they have the nodules, but such evidence is by no means conclusive.

If this view be taken, I should wish to draw attention to the fact that with the onset of acute arthritis there were no nodules, but that only when the joint mischief had led to deformities such as all would agree in allowing were typical of osteo-arthritis did the nodules develop. We must hold either that osteo-arthritis and rheumatism are identical, or that subcutaneous nodules in adults may be part of other conditions than rheumatism, *e. g.* osteo-arthritis, syphilis, &c.

Dr. Angel Money (11) has pointed out that subcutaneous nodules and acute rheumatic polyarthritis are seldom found together, and that the more smouldering the lesion, the greater is the liability to the formation of subcutaneous, subcapsular, and subserous nodules.

It has been generally accepted hitherto that the presence of nodules implied that the rheumatic process was active and was associated with cardiac changes. In none of the cases quoted was there any evidence of cardiac disease.

It is most probable that the arthritic condition was from the onset an osteo-arthritis, and was never rheumatic. The swelling of the joints and their permanent injury followed the first attack, and the fact that the patients have never been well since the onset bears out this view.

From a consideration of the cases presented, and of those which have been published by other authors, the following conclusions may be formulated.

Fibroid subcutaneous nodules may occur in connection with osteo-arthritis. They present the same physical characters, and probably similar microscopical structure to those found with acute rheumatism in children, but differ in the following points:

1. They occur in adults.
2. They are much more chronic, and last for months or years.
3. They are at times extremely painful and tender, and the painful state may recur time after time.
4. They are unassociated with any cardiac lesion.
5. They may be the size of minute shot, but occasional single ones measure up to an inch in diameter.

On extensive exudations with chronic arthritis.

The first case (A) also presents interesting features in the diffuse, dense, apparently fibroid deposits producing a hide-bound condition, which quickly crippled the patient's hands.

Scarcely any book draws attention to the occasional occurrence of such a condition in connection with chronic arthritis, with the exception of Dr. A. E. Garrod (12), who points out that Jaccoud describes them under the title "Rhumatisme chronique fibreux."

Mr. Hutchinson also has drawn attention to the gelatinous material, with cell elements similar to granulation tissue, which deposits in the tendon sheaths and in the nodose enlargements over the joints in osteo-arthritis.

The effusion into the tendon sheaths was marked in all my cases, but the widely diffused fibroid condition (which was not, however, sclerodermia) was only present in one.

As a well-marked example of extensive exudation I would quote from Dr. Middleton the following, which occurred as the sequel, however, of rheumatism (13).

Mrs. L., æt. 39, had acute rheumatism twenty-six, and again four years ago; since the last attack she has frequently had pains in her joints. There is no cardiac murmur. On the flexor surface of the fingers of each hand are some twenty raised nodular masses, the larger being lobulated, presenting the appearance of a knotted blackthorn stick. At times they are free from pain, but they are liable to become very painful, especially when they are growing. The joints crepitate. On removal the nodules are found to consist of connective tissue, the central part being free from vessels; but in the periphery the arteries are abnormally numerous, and in many instances the coats, especially the intima, are greatly thickened by cell infiltration. There is cell infiltration for a considerable distance from the vessels.

Dr. Pasteur (14) reported to this Society a case of multiple arthritis in a girl aged eight and three quarters

in whom there was a tendency to a general limitation of movement with shortening of the flexor tendons, and a general wasting and tightening of the deeper structures, but whether this was due to a fibrinous exudation is rather uncertain.

Dr. Barlow (15) reported a case of a child aged eleven and a half with painful chronic arthritis, in whom there was a general thickening of the subcutaneous tissues of the arm and forearm, suggesting an approximation to a hide-bound condition. The fingers were often blue, and the tips white and tapering. There were nodules on the palmaris tendon.

Lancereaux (16) has recorded the case of a woman aged fifty, with chronic osteo-arthritis and deformity. For two years she had had sclerodermia of the extremities and face. The skin was indurated, marble-white, and hidebound. The face looked like a mask of wax. She had periodic attacks of intense pain in the limbs.

In some of these cases the hidebound condition would appear to correspond to that in Case A, but in others the resemblance may only be apparent.

On the structure of the nodules.

I have not had the opportunity of examining a nodule from these cases, but the minute ones resemble in physical characters those described in acute rheumatism, and the large nodular masses agree with those described by Dr. Middleton (13), and I have but little doubt that they are practically identical.

Nepven (17) gives the following description of a nodule removed from a case with acute rheumatism. Two sharply defined necrotic granular centres surrounded by endothelial and white cells, densely packed, which extended chiefly along the lymphatics. In a small arteriole was a pale disintegrating clot. There were numerous cells round some of the arteries, probably due to emboli which set up inflammation.

Dr. Cavafy (18) has pointed out that the nodules are very vascular, the inner coat of the arteries enormously thickened so as nearly to obliterate the lumen in places; the adventitia is blended with the fibrous tissue.

The accounts of Garrod and other observers agree in noting the granular necrobiotic centre, the dense organising connective tissue around, with an evidence of extreme irritation as shown by cell exudation and of marked endarteritis.

I would particularly draw attention to the structure of the

minute nodules, and to the occasional occurrence of abundant fibrinous exudations, which Dr. Middleton has shown have, in rheumatic cases, an identical structure. These may occur as large nodules or as a diffuse sheath, some of which latter have probably been described as sclerodermia, although it is doubtful whether they are identical with it.

The extensive formation of minute nodules and of diffuse exudation producing a wide-spread peripheral endarteritis affords a satisfactory explanation of the peripheral asphyxia in Case A. Possibly the cold extremities which are so constantly present in osteo-arthritis are a slight form of the same condition.

In this connection the observations of Prof. Max Schüler (19) are of great interest. He has found in the swellings and exudations of osteo-arthritis bacilli about $2{\cdot}5\ \mu \times 1\ \mu$, almost straight, which he cultivated in the dark at a temperature of 25° C. They liquefy gelatine. When ·5—1 gramme of the cultivation is injected into the knee of a rabbit, inflammation and distension of the capsule without suppuration ensues; they produce, according to him, a chronic arthritis. Should these observations be confirmed, they would appear to explain many difficulties with regard to the nodules. The marked endarteritis, the extreme cell exudation around, and the recurrent attacks of inflammation in the nodules, which are inexplicable if the nodules consisted solely of exudation which had organised, at once receive a more satisfactory explanation.

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XI.—*Empyema in a Man aged thirty-six, with complete and permanent Collapse of the Lung.* By W. G. Spencer. *Read December* 8, 1893.

WHEN this case was first seen by me the disease had already gone so far that a cure could hardly be looked or. The measures used, however, seem to have lengthened is life by nearly a year.

An engineer, tall and broad in the chest, had served on a hip, and suffered in India from ague and enteric fever. In 888 he had an attack of pneumonia. During 1891 he vorked in the heat of an engine-room in London, and in the atter half of this year began to feel "tightness across the hest," and noticed some bulging and pain in the left side. 'he symptoms increased, he gradually became weaker, had ı the end to give up, and went into an infirmary. In 'ebruary, 1892, a small incision was made into the thorax ıst above the diaphragm, in the line of the left nipple, where appears the empyema was pointing, and much pus came ıt. In June, 1892, another opening was made by excising ıe inch of the tenth rib in the anterior axillary line. The ıvity was washed out twice daily with boric acid lotion, not uch pus escaping between the dressings; the temperature nged between 100° and 101° F. at night, and he became so eak that he could not sit up in bed without aid.

He came under my care at the end of August, 1892, with 'o valvular openings, from which a large amount of pus, rhaps between one and two pints, passed daily, chiefly ıen dressed, and he was so feeble that he could scarcely ve lived a fortnight longer. My colleagues, Drs. Sturges d de Havilland Hall, repeatedly examined the man with ı in the course of his illness, but they could never find any 'tain signs of disease in the right lung, and the urine ıtinued normal throughout. He had occasionally a cough, t without tubercular expectoration.

On August 31, 1892, I removed portions of five ribs, from ı seventh to the eleventh, in the posterior axillary line, l as the free drainage which followed caused the patient greatly improve, I was able on October 11 to excise

pieces from the third to the sixth, as well as some more portions from the lower ribs. The pleural cavity was syringed out twice daily, and iodoform emulsion injected. By December, 1892, he could walk out of doors for two hours, but then the improvement came to a standstill, and he was urged to submit to a further removal of ribs and pleura. He felt, however, so much better that he refused, and left the hospital. Two months afterwards he came back as weak as when first seen; his weight had fallen to 8 stone, and the temperature rose at night to 105° F.

FIG. 8.

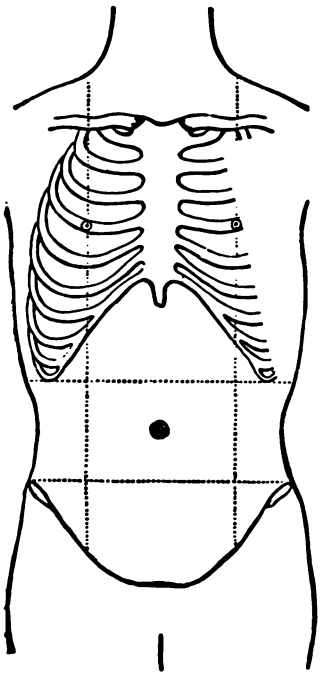
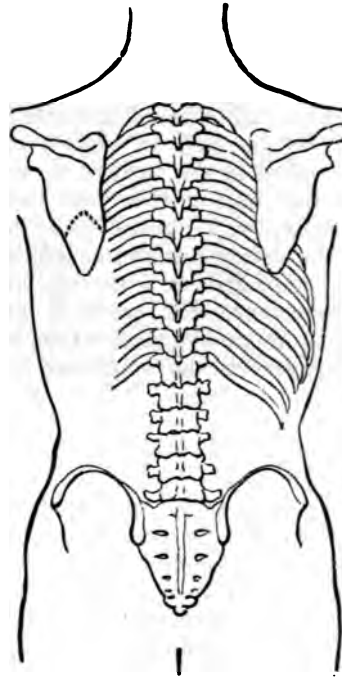


FIG. 9.



After another month spent in trying to regain lost ground, I took away, on March 14, 1893, the ribs and pleura from the second to the eleventh, as far outwards as I could reach by retracting the scapula without actually separating its attachments, and below the scapula to within one or two inches of the transverse processes of the vertebræ. In front I kept a little outside the junction of the bony ribs with

their cartilages. The cavity was filled daily with cyanide gauze steeped in iodoform emulsion, and the patient again improved. The purulent discharge quickly sank to a very small amount, and the surface of the cavity became covered by vascular granulations. In June he could walk in the open air, and the temperature had become normal: that he did not gain weight was the chief bad sign. In the latter part of June he went to the Swanley Convalescent Home. There, the weather becoming unusually hot, he was attacked by diarrhœa, and was sent back only to die.

At the post-mortem examination on July 14, 1893, the left lung was found completely collapsed in the upper part of the costo-vertebral groove. The right lung was hypertrophied, having numerous fibroid tubercles in it and one cavity about ½ inch in diameter. There was no sign of active tuberculosis. The left pleural cavity had been reduced to much less than half that of the opposite side, the remaining pleura being very thick, and the corresponding half of the diaphragm slightly concave. The spine had remained quite straight, and the cut ends of the ribs stuck directly out. There were some enlarged and caseous mediastinal glands; the liver and spleen yielded a markedly amyloid reaction, and the kidney showed traces of the same.

The treatment, in short, of this case was as follows:

The empyema was unnoticed and not incised until the lung had become permanently collapsed. For six months after incision it drained through valvular openings, during which the patient became very weak. Free openings, followed by a diminution in the volume of the cavity and the injection of iodoform, caused the man to mend greatly. A removal of the ribs and pleura not covered by the scapula, and the application of antiseptic gauze to the interior of the cavity, reduced the discharge to a minimum.

The course of the case offers several points worthy of notice.

The anæsthetics used were gas and ether, but he was not long under, for the pulse rapidly fell away and the breathing became irregular; consequently the operations were of limited extent and hastily done. After each operation there was much shock, so that brandy was needed every half-hour in tablespoonfuls for two days or more. The heart could be seen beating within the pericardium, hanging in the cavity of the thorax like the clapper of a bell, and "erecting itself" each systole. The shrunken dark-coloured lung lay

against the spine. Whenever a forcible expiration occurred, the opposite lung bulged across the middle line, pushing the heart before it, so that at intervals during the operations the heart's apex was pushed outwards into the wound. When the ribs and pleura were cut near the spine there was free venous bleeding. Although this quickly stopped on pressure, yet it was sufficient to prevent the ribs, in the weak state of the patient, from being removed right up to the transverse processes. The diaphragm on the left side when first examined was still convex; later it became flat and then saucer-shaped, so that the pus tended to collect on its upper surface unless removed by the gauze, although the wound extended down to the attachments of the diaphragm.

Owing to the age of the man the condition of the chest was quite different from that found in the young; even when the rest had been excised the necks and angles of the ribs rigidly held their position in connection with the spine, and failed to sink down and in. Granted the lung permanently collapsed, the patient would, no doubt, have lived longer had the larger operation and the filling of the pleural cavity with gauze checked at an earlier period the flow of pus. But a complete closure of the empyema was beyond hope. As an exercise on the cadaver, all the ribs can, of course, be removed from one side; but will this procedure ever come within the range of practice? And even if all the ribs were removed from their necks to their cartilages, could one half of the thorax become completely obliterated in an adult?

III.—*Acute Phthisis following the destruction of the Mucous Membrane of the Stomach by Corrosive Fluids.* By W. Soltau Fenwick, M.D.Lond. *Read January* 12, 1894.

ASE 1.—A potman, 34 years of age, was admitted into the London Hospital on October 16, 1888, with the symtoms of acute irritant poisoning, having swallowed some xalic acid about an hour previously.

After the administration of the usual remedies the stage f collapse gradually passed off, but the patient complained f a burning pain at the epigastrium attended with frequent etching. During the next twenty-four hours the pain and omiting continued severe, and the ejecta on several occaions contained traces of altered blood. On the third day of is illness he had an attack of melæna, and this symptom ecurred several times.

For a fortnight after taking the poison the patient coninued to exhibit the symptoms of severe inflammation of the tomach, violent attacks of vomiting ensuing on every ttempt to swallow any form of food.

On November 5, nineteen days after the commencement f the disease, it was noted that the patient had only been ick twice during the preceding forty-eight hours, and could ow swallow small quantities of liquid nourishment. There as still considerable pain over the region of the stomach, ncreased by pressure with the hand.

On November 10 vomiting again became urgent, the jecta consisting of an exceedingly sour-smelling fluid which ontained a large quantity of lactic acid but appeared devoid f any trace of free hydrochloric acid. Numerous torulæ and acteria were detected with the microscope.

One month after admission it was noted that the patient omited once or twice a day, about 20 ounces of sour fluid evoid of any free hydrochloric acid being ejected on each ccasion. There was still considerable pain experienced at e epigastrium after taking liquid food. The stomach was und to extend one inch below the navel, and pressure over e pyloric region gave rise to pain.

A fortnight later, on November 27, the dilatation of the

stomach was found to be more apparent, and the amount of the daily vomit measured 70 ounces. No free hydrochloric acid could be detected in it.

By December 10 the patient was sufficiently recovered to be able to leave his bed for a few hours daily. He was now able to take small quantities of bread and milk and similar food without vomiting, but the more solid forms of nourishment gave rise to immediate pain at the epigastrium, and were speedily rejected. The body weight, which on admission was said to have exceeded 10½ st., was now only 7 st. 8 lbs.—a loss of rather less than 3 st. The temperature remained steadily at a point somewhat below the normal, the tongue was flabby and indented by the teeth, and the bowels were obstinately confined. The stomach was now found to extend 2½ inches below the umbilicus, and to present a well-marked splash, which was audible to the patient himself when he turned over in bed. Under these circumstances it was determined to wash out the stomach with warm water, the operation being performed by means of a glass funnel and a soft tube.

The daily employment of lavage combined with careful feeding brought about a rapid improvement in the general condition. A month later, on January 14, the body weight had increased by 7 lbs. The patient still complained of attacks of severe pain at the epigastrium, occurring at irregular intervals but always aggravated by the ingestion of food. The vomiting had also diminished in severity, and several days sometimes elapsed between the attacks. On pumping air into the stomach by means of a hand bellows the lower border of the organ was found to extend about 2 inches below the umbilicus. No trace of free hydrochloric acid could be discovered in the fluid extracted from the stomach.

On January 25 the patient complained of feeling chilly, and thought he had caught a cold while walking in the garden. The following week it was noted that the patient was not so well. He had now a troublesome cough attended with slight expectoration, and was much disturbed at night by profuse perspirations. The temperature also, which previously had remained constantly below the normal point, now registered 101° F. in the morning, and 102·5° F. at night. The vomiting was very troublesome, and the steady increase in weight was not maintained. The physical signs denoted the existence of some general bronchitis.

A fortnight later, on February 13, the body weight had

decreased by nearly 7 lbs. The patient was very weak, and troubled by constant cough and expectoration. Comparative dulness on percussion was detected at the right apex, with numerous moist crepitations on inspiration.

From this time onward the pulmonary condition rapidly developed. At the commencement of March the upper part of the right lung was comparatively dull as far as the fourth rib, with the auscultatory signs of consolidation; while an impaired note at the left apex and right base posteriorly, with abundant moist sounds, gave evidence of the wide-spread character of the disease.

On March 8, the patient had a sharp attack of hæmoptysis. The expectoration was found to contain numerous tubercle bacilli. The temperature seldom declined below 103°, and occasionally registered over 104°. Along with the development of the pulmonary disease the gastric condition became worse. Vomiting now occurred frequently, and the spasmodic attacks of pain required the constant exhibition of morphine for their relief. The patient's strength rapidly failed, and he eventually succumbed to extreme exhaustion on April 5, 1889, rather less than six months after taking the oxalic acid, and about six weeks after the onset of the pulmonary symptoms.

At the post-mortem examination the lungs were found to be the seat of an acute tuberculous process which involved their whole tissue from apex to base. In the upper lobe of the right lung there was a cavity the size of a large walnut. The stomach was greatly dilated, and contained 54 oz. of fluid. In the cardiac and middle zones the mucous membrane exhibited a peculiar glistening appearance, and was firmly adherent to the muscular coats, the whole wall of the organ being remarkably thin and transparent. Radiating over the surface were a number of fibrous bands of the nature of superficial cicatrices. The mucous membrane in the pyloric region was abnormally thick, and presented the characteristic features of the *état mamelonné.* The pyloric orifice had been narrowed by the thickening and contraction of the mucous membrane in its immediate neighbourhood, and would only admit the passage of a small catheter. On microscopic examination the mucous membrane in the cardiac and middle thirds of the organ was found to have been converted into a layer of fibrous tissue a few lines in thickness, in which little or no indication of the former structure of the stomach could be detected. The other organs were normal.

Case 2.—A gentleman, æt. 32, came under treatment in May, 1886, for a chronic disorder of the stomach.

He stated that when abroad some five months previously he had accidentally swallowed some nitric acid, and had been immediately seized with great pain in the abdomen and vomiting. As the result of this accident he had been forced to keep his bed for nearly two months, and for many weeks had been unable to take any form of nourishment by the mouth without vomiting.

He now complained that whenever he attempted to swallow solid food it appeared to stick in the gullet and gave rise to pain at the lower part of the chest on the left side, and was usually vomited within a short time. When he swallowed a mouthful of liquid the fluid appeared to trickle slowly into the stomach past some obstruction, but if he attempted to drink quickly the major part of it regurgitated at once. Even when food did reach the stomach it invariably caused considerable pain at the epigastrium, and was often rejected. On several occasions, especially at the beginning of his illness, he had vomited blood, the last attack having occurred five weeks previously. The bowels were obstinately confined. Before the commencement of the disorder he had always enjoyed excellent health, and as far as he was aware none of his family had suffered from phthisis.

On examination the patient was found to be extremely anæmic and emaciated, and according to his own statement had lost nearly 4 st. in weight. The pulse was small and feeble, the temperature 97°, and the tongue covered with a thick fur. The breadth was very sour and offensive. The stomach was considerably dilated, and the lower border extended two fingers' breadth below the level of the umbilicus. The peristaltic movements were faintly visible, and a well-marked splash was obtained on palpation. The whole of the epigastric region was somewhat tender, and pressure over the pyloric extremity caused pain. The other organs were normal.

The distinct history of corrosive poisoning, coupled with the symptoms and physical signs just narrated, seemed to point to a constriction at the lower end of the œsophagus along with chronic gastric catarrh and stenosis of the pylorus. It was accordingly determined to wash out the stomach regularly and to administer food by means of the tube. On attempting to pass a soft tube some resistance was encountered at a spot about 42 cm. from the incisor teeth, but this was

easily overcome and the stomach thoroughly washed out. The fluid extracted from the organ was yellowish-brown in colour, and very sour-smelling. It contained a large quantity of lactic acid, but appeared devoid of free hydrochloric acid. Lavage was afterwards performed daily, and the patient soon learned to accomplish it for himself. The effect of keeping the stomach clean and administering food through the tube soon became apparent; the pain and vomiting were considerably relieved and the patient rapidly gained in weight.

Three months later the patient had increased his weight by more than a stone. He still complained of attacks of pain in the region of the stomach, which were aggravated by the ingestion of food, but the vomiting was much less troublesome. On examination the epigastrium was still tender, especially over the pyloric region of the stomach. The stomach itself showed signs of considerable dilatation, and on being distended with air the lower border reached several inches below the navel. No free hydrochloric acid could be detected in its contents.

Six weeks later (nine and a half months after swallowing the acid) the patient expressed himself as feeling much worse. For a fortnight he had been troubled with a severe cough and expectoration, and had lost several pounds in weight. At night his sleep was disturbed by profuse sweats, and each paroxysm of the cough brought on an attack of vomiting with severe pain at the epigastrium.

The temperature now registered 102°, the pulse was quick, and the patient seemed to suffer from some dyspnœa. The stomach was found to extend as low down as a spot midway between the umbilicus and the pubes, and presented a loud splash. The percussion note over the upper part of the left chest was comparatively dull as far as the fourth rib, and coarse moist sounds were audible over this area. The percussion note was also defective at the right base posteriorly, and numerous rhonchi with occasional crepitations were to be heard scattered over the whole chest.

From this time the pulmonary phenomena pursued an acute course. Tubercle bacilli were demonstrated in the expectoration, the gastric symptoms became greatly aggravated, and the patient succumbed seven weeks after the first appearance of the phthisical symptoms, and rather more than ten months after taking the nitric acid.

At the autopsy both lungs were found to be studded with caseous tubercle, which in many places had already broken

down into small cavities, notably in the left upper lobe. The stomach was enormously dilated, and occupied the greater part of the anterior aspect of the abdominal cavity. At the lower end of the œsophagus, for about 7 inches, the mucous membrane showed evidences of longitudinal scarring. About 1½ inches from the cardiac orifice the tube was distinctly dilated and its wall thickened, while just above its termination there existed a cicatrix, involving a quarter of its circumference and causing considerable narrowing of its lumen. The stomach contained a large quantity of fluid and gas. In the fundus of the organ the mucous membrane had undergone post-mortem digestion, but elsewhere the whole of the secreting surface was found to have been completely destroyed, and a thin layer of fibrous tissue was all that remained to represent the mucous membrane. Close to the pylorus and situated on the lesser curvature there was a chronic ulcer about the size of a florin. The edges were thick and irregular, and the base was formed of the muscular coat of the organ. The contraction of the edge of this ulcer had produced a puckering of the surrounding tissues, and so contracted the pyloric orifice that it would only admit the introduction of a lead pencil. The other organs were normal.

In the 'Bulletins de la Société Anatomique de Paris' (p. 309, 1880), M. Robert gives the details of a case the main features of which are almost exactly similar to the preceding. The patient, a man 32 years of age, was attacked with the symptoms of severe inflammation of the stomach after swallowing some nitric acid. The organ was found to be much dilated, and he suffered from several attacks of hæmatemesis. At the end of ten months he suddenly developed a cough accompanied by fever, and soon exhibited all the signs of acute phthisis. At the end of six weeks he succumbed to pneumothorax. At the autopsy a chronic ulcer was found in the pyloric region of the stomach, causing contraction of the orifice. Elsewhere the inner surface of the organ presented a smooth, shining appearance, with cicatricial bands radiating in all directions. Both lungs were profusely studded with the so-called broncho-pneumonic tubercle, and a small cavity in the left upper lobe had ruptured into the pleural sac.

The three cases just cited are almost identical in their clinical and pathological features. In each case the corrosive fluid had given rise to severe inflammation with subsequent destruction of the secreting surface of the stomach. The

onset of the pulmonary disease of the body was always heralded by a sudden elevation of the temperature, which previously had remained constantly below the normal point. Although none of the patients possessed a family tendency to phthisis, the disease in each case ran a very acute course, extending over a period of about six weeks. It is also worthy of remark that in the two instances where the vomit was systematically examined no trace of free hydrochloric acid could ever be detected.

XIII.—*A case of Suppurating Hydatid Cyst of the Liver, opened through the chest wall.* By W. J. Tyson, M.D. *Read January* 12, 1894.

F. G., æt. 31, a laundress. Married at age of eighteen; has been a widow for five years; has had five children, all of whom are living; no miscarriages. Has never been abroad.

History.—In 1888 she suffered from a slight attack of jaundice, lasting a fortnight; says that she has attacks of indigestion occasionally.

In October of 1891 began to feel unwell, and in January, 1892, became jaundiced and was quite poorly. On February 8 she was admitted into the Victoria Hospital, Folkestone, the jaundice having almost disappeared just before admission.

On admission.—The liver extends 4 inches below the margin of the right ribs; there is no tenderness on pressure. The lungs and heart are normal; the spleen is not enlarged; the urine contains no albumen. The evening temperature is 101°.

February 19.—The liver dulness has slightly increased, and there is now some tenderness on palpation.

On examining the chest there is found dulness extending on the right side behind from the apex to the base of the lung, but more pronounced in the lower half; the breath-sounds are deficient, and there is loss of tactile vibration.

The left chest is not affected in any way. The evening temperature has risen to 103°; the morning is just above normal.

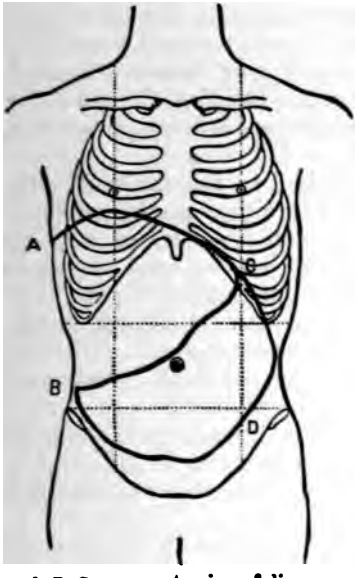
February 23.—The liver now extends downwards for 9 inches, the edge being close to the pubes; there is also dulness for 3 inches above the lower margin of the ribs in front; it is not tender or lumpy to the feel. The heart's apex beats just below the left nipple. In the left chest there is puerile breathing and free movement; it is resonant from apex to base. The right chest shows the same signs as those observed on the 19th inst., with the addition of a deficiency of movement of the chest wall, and a general fulness of the side, which on measurement gave an increase of 2 inches above that of the left side, being 16½ inches. Temperature remains the same.

February 26.—The chest signs remaining as before, chloro-

form was given and the chest aspirated in the eighth intercostal space behind, 1 inch below the angle of scapula and 3 inches to the outer side of it, when 23 oz. of a yellowish, serum-like fluid was drawn off, the sediment of which showed leucocytes only.

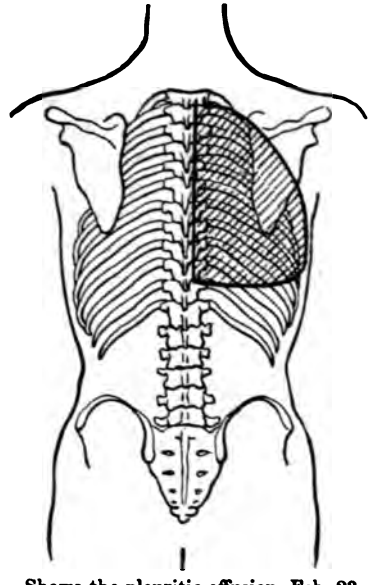
February 28.—The liver had ascended 3 inches; the apex of the heart beats just inside the nipple. The dulness is less marked in the right chest behind, but this is principally noticeable in the upper half, there being little difference

FIG. 10.



A, B, C represents size of liver on admission, Feb. 8. A, B, D, C shows the size on Feb. 23.

FIG. 11.



Shows the pleuritic effusion, Feb. 23.

in the lower half; breath-sounds are now heard close to the spinal column from apex to base of lung, but away from the spine only in the upper part of chest.

March 3.—The chest was again aspirated in the same intercostal space as before, but three inches nearer to the middle line; 1 oz. of puriform fluid was drawn off.

Description of fluid.—Rather offensive, thick and white in appearance; there were about six gelatinous-looking bodies of the size of a pea, which, when washed, proved to be small

vesicles, semi-transparent, easily torn, and looked like scolices of an hydatid; pieces of the membrane of the vesicle examined microscopically showed laminated edges typical of hydatid membrane; no hooklets were discovered.

March 5.—The heart seems now to beat an inch to the outside of the nipple; otherwise the physical signs have not changed since the 28th ult. In the afternoon chloroform was administered, and an opening made into right chest posteriorly along the upper border of the ninth rib for 3 inches, the incision uniting the two former punctures. About 2 oz. of blood-stained serous fluid escaped from the pleural cavity on opening the thorax; immediately following the above fluid there bulged up against the chest opening a tense swelling, on aspirating which some thick pus was drawn off; after an ounce had passed the needle became blocked, the aspirator was now disconnected, but the needle was left temporarily in the cavity of the cyst.

The wall of the cyst was stitched to the external skin opening, one suture being placed at either angle, and one above and below the centre of the incision, four in all; the cyst wall was now incised for 1½ inches, and at once puriform hydatid fluid with a great number of "skins" of all sizes poured out, to the amount of 30 oz.; a large india-rubber drainage-tube six inches in length was placed in the cavity, which was not syringed out; external dressing of cyanide gauze and alembroth wool was applied.

The hæmorrhage was very slight. On account of the wide separation of the ribs, over an inch, there was no difficulty in putting in the uniting stitches between the cyst-wall and the external skin.

March 6.—The liver has now receded to the navel; the heart's apex is beating one inch below and just inside the nipple. In the chest the percussion note is dull only in the lower half posteriorly, and the breath-sounds are well heard close to the spinal column.

March 7 and 8.—On each day there was about half a pint of pus and "skins" passed, and the cavity was washed out with boracic acid lotion through the tube. The ribs on the right side have now come very close together, so that there is difficulty in getting a finger between them. The temperature has dropped to normal.

March 10.—A few "skins" still pass, with about half an ounce of discharge. Breathing on r [illegible] oved; she is looking well and takin[illegible]

March 11.—Tube shortened. The foot of the bed raised four inches for better drainage.

March 13.—The breathing is now audible over the base of the right lung, and the dulness is disappearing; the right side now measures only half an inch more in circumference than the left; the heart is in its normal position. There is little or no dulness on percussion below the margin of the rib, although the liver can be felt for about two inches; all tenderness has gone.

March 18.—The cavity is still treated as heretofore by washing out through the tube with boracic acid lotion. Breath sounds are now heard plainly over the right base; dulness in this position almost absent. The right chest measures 16 inches, the left 15¾ inches.

March 22.—About 2 drachms of bile escaped from tube this morning, probably from the irritation set up by the tube having worked too far into the opening. The liver seems now to have gone up to the level of the margin of the ribs.

March 28.—Tube again shortened. The alembroth dressings left off on account of the slight ulceration of skin produced; wound dressed with boracic acid lint, and gamgee wool; the discharge amounts to about two teaspoonsful a day.

April 6.—An ounce of bile was discharged from the wound to-day.

April 14.—Became very collapsed and sick, pulse 60, temp. 99°. Stimulants and opium were given; the attack passed off in twenty-four hours. A similar attack came on in the beginning of May, since then has been well. The tube finally left out on February 20, 1893.

Remarks.—The case, when first admitted, was thought to be one of simple enlargement of the liver, but the rapid increase of its size, together with the high evening temperature, pointed to a suppurative condition of the organ. The pleuritic effusion somewhat complicated the case, and, so far, I have not come across any records of liver abscesses in which this condition was present; having cleared this out of our way, the course of treatment was comparatively easy. The question of site for operation was soon settled, for in the second tapping on March 3, a week after the first aspiration, the abscess was reached posteriorly within an inch of my skin puncture, and the contents then removed confirmed our diagnosis. The operation was done as described in my notes two days later, March 5.

The question arose during the operation whether we should

wait or not for adhesion to take place between the diaphragmatic and costal pleuræ before opening the cyst. As the immediate method has been carred out so successfully when opening a liver abscess through the abdominal wall, so I thought it might be adopted when the abscess was opened through the thoracic wall.

In a case of hydatid cyst of the liver read before this Society in 1887, the cyst was opened finally through the chest, after some of its contents had been removed by aspiration (as in my own case) in order to relieve the tension and permit of some of the face of the sac being drawn through the diaphragm and across the shallow pleural cavity to the skin wound, to which it was secured by harelip pins; but the cyst was not laid open until the fourth day. Some amount of fluid escaped into the pleural cavity with air also, but both soon became absorbed, and the base of the lung descended to its proper level.

In the case under consideration, the upper wall of the cyst, —consisting probably only of thinned diaphragm—after opening the thoracic cavity, fitted against the chest opening as completely as a ball fits round its socket in an ordinary ball-and-socket joint; so it must be admitted that the abscess was an easy one to treat in the way that is recommended.

The fear of producing an empyema seems to be remote, and even were this to occur, it could be treated on ordinary surgical principles with little risk. In cases recorded by Mr. Rickman Godlee and by Mr. Edmund Owen air was freely sucked into and out of the pleural cavity during an operation of a similar kind to the one described this evening; in neither of the above did disastrous results follow. It is worth noticing that in abscesses occurring in the upper portion of the liver there is often an absence of adhesion between the diaphragmatic and costal pleuræ.

As regards the removal of a portion of a rib or ribs, this will be a matter to consider at the time of operating; in my own case the space which was opened was sufficiently wide to enable me to carry on every manipulation that was required; perhaps also the resection of a rib or not may depend on the predilections of the surgeon.

In such liver abscesses as the one described, the opening through the chest seems to be the proper route to take, as being more direct and better adapted for drainage.

XIV.—*Case of Membranous Inflammation of the Throat during Scarlet Fever.* By E. W. Goodall, M.D., and J. W. Washbourn, M.D. *Read January* 12, 1894.

ALICE C., æt. 21, married, was admitted into the Eastern Fever Hospital at 10 P.M. on September 28, 1893, certified to be suffering from "Scarlet Fever and Diphtheria."

The attack had commenced on September 24 with vomiting and sore throat; there were also diarrhœa and swelling of the neck. A rash was stated to have been noticed on the 26th. On admission there was much swelling about the fauces, which were covered with membrane. There was a faint scarlet rash on the shoulders. Evening temp. 102·4°.

September 29.—There is a large sheet of membrane stretching over the palate, which is extremely swollen; this membrane is most distinct. All over the trunk is an erythematous rash; this is also well seen on the upper and lower extremities, but it is not a punctate rash except in the bends of the elbows, on the dorsa of the feet, and slightly on the lower part of the abdomen. The rash does not extend up on to the face, and is but little seen on the neck. The eyes are much suffused, and the conjunctivæ injected. There is also rhinitis. The tongue is dry in patches, and the papillæ are enlarged along the edges and the tip. The cervical glands are somewhat enlarged. At 1.30 P.M. a piece of the membrane was taken for bacteriological examination. Morning temp. 01·2°, evening temp. 101°.

September 30.—The rash has almost gone now, and only onsists of a few irregular-sized papules on the shoulders, gs, and thighs. The condition of the throat remains nchanged. There is some return of fluid by the nose when ie patient drinks. The patient was slightly delirious last ight. Morning temp. 100°, evening temp. 101·6°.

October 1.—Patient had a much better night. The throat cleaner to-day. A considerable amount of membrane was at out of the mouth during the night. Morning temp. 1°, evening temp. 102°.

October 2.—Throat slightly cleaner; there is some inflamation about the inner canthus of the left eye. Morning mp. 101·6°, evening temp. 103·4°.

October 3.—On the buttocks desquamation in rings is taking place. Morning temp. 102·4°, evening temp. 103·6°.

October 4.—Fauces are cleaning, but the uvula is still covered with membrane. The tonsils are slightly ulcerated. There is some desquamation on the back and on the elbows. There is troublesome diarrhœa of a very offensive character. Morning temp. 102·8°, evening temp. 103°.

October 5.—The deposit on the palate, uvula, and tonsils remains. Some was at 1 P.M. with difficulty got off the uvula for further bacteriological examination. There is marked desquamation on the gluteal region and back of the neck, also some irregular desquamation on the elbows. There is inflammation of the left lachrymal sac with apparently slight blocking of the nasal duct, also ulceration of the anterior nares, with superficial ulceration of the angles of the mouth. Morning temp. 102·4°, evening temp. 104·4°.

October 6.—Patient is now decidedly better, the voice (hitherto feeble) is now clear and distinct. Throat in the same condition as yesterday. Morning temp. 103°, evening temp. 103·4°.

October 7.—Diarrhœa is still troublesome, and patient has some abdominal pain. Morning temp. 103°, evening temp. 103·6°.

October 8.—A little membranous material was spat out of mouth to-day. Morning temp. 102·4°, evening temp. 103·6°.

October 9.—The patient is now desquamating pretty freely on the chest, as in scarlet fever. Desquamation is also commencing on the fingers. Morning temp. 102·2°, evening temp. 102·4°.

October 10.—The inflammation of the lachrymal sac is more intense; both eyelids are swollen. Diarrhœa better. Morning temp. 101·8°, evening temp. 102·6°.

October 11.—Eye is better to-day. The patient's voice (which has always been weak) is quite absent to-day. There is still some return of fluids by the nose. Morning temp. 101·4°, evening temp. 100·6°.

October 12.—There is marked aphonia, which has been noticed more or less all through the illness but has become more pronounced during the past few days. Morning temp. 100·2°, evening temp. 101·2°.

October 13.—Fluids have returned through the nose; the patient can swallow well. The heart's action is increased in frequency and intermits occasionally; a systolic apical bruit can be heard. Morning temp. 100°, evening temp. 100°.

October 14.—Respiration normal, and increased in frequency. The patient is wasting. There is still ulceration of the edges of the palate. Morning temp. 100°, evening temp. 101·6°.

October 15.—The desquamation is marked, and quite out of proportion to the rash, which was slight. The throat is injected, and there is ulceration round the base of the uvula. The patient is still aphonic. The inflammation of the lachrymal sac is less. Morning temp. 99·4°, evening temp. 103°.

October 16.—Patient is extremely tremulous. She had a very restless night; she is rapidly losing flesh. There is a discharge from both ears. 6 P.M., the patient is much weaker; pulse 170. There is no apical bruit, and the apex beat is in normal position. The right pupil is somewhat dilated; both react to light. Morning temp. 100°, evening temp. 103°.

October 17.—At 4 A.M. the patient got very much weaker and died in about half an hour. Temperature at 2 A.M., 101·4°.

For some days before her death the patient had been very feeble. The urine was only examined three times. On October 10th there was no albumen, on the 11th and 13th there was a trace; after that she menstruated up till death.

There were never symptoms of nephritis.

Bacteriological examination of the membrane.—The membrane was about $\frac{1}{8}$ inch in thickness, white and very tough. Microscopical examination revealed the presence of micrococci in abundance, but no bacilli.

Inoculations were made on four blood-serum and three agar tubes. In all the tubes two kinds of colonies grew. These, however, consisted of micrococci, and no diphtheria bacilli could be found.

Examination of the deposit taken from the uvula on October 5 also gave no evidence of the presence of diphtheria bacilli.

From the point of view of bacteriology, therefore, the case was not one of diphtheria.

When this patient was seen on her admission three questions arose:—(1) was the case one of severe scarlatina anginosa with membrane? (2) was it one of diphtheria with a rash? (as occasionally, though rarely, may be seen), or (3) was it one of coexisting scarlet fever and diphtheria? So thick and extensive was the membrane that it was decided on the whole to be a case of diphtheria with a rash, but the patient was placed in an isolation ward. Clinically the condition of

the fauces was at that time indistinguishable from diphtheria, but later on, when the membrane had cleared off, when the lachrymal sac became inflamed, and especially when free desquamation had set in, the case assumed all the aspects of one in which there had been a severe attack of scarlatina anginosa. The return of fluids through the nose was not due to a true paralysis; the palate had been rendered more or less inert by the severity of the inflammation it had undergone, and there was also ulceration. It is not at all uncommon to have regurgitation of liquids through the nose in severe cases of scarlatina anginosa. There was never at any time a nasal voice. As for the aphonia, it was present all through but became worse towards the end; it was due to the patient's general grave condition. There were never signs of obstruction in the larynx.

The rash, though extensive in distribution, was not marked in appearance, whereas the attack was severe. This of course is not very uncommon. The interest of the case lies really in the fact of the presence of very definite and fairly extensive membrane.

It is of course well known that in scarlet fever, during the acute stage, there is frequently a deposit on the fauces similar in appearance to that which is found in diphtheria, though it is not often so distinctly membranous as it was in this case, and it is only by a bacteriological examination that this deposit can be distinguished, as regards its cause, from true diphtheria. We have notes of four cases (including the one under discussion) of this nature in which a bacteriological examination failed to reveal the presence of diphtheria bacilli. In their subsequent clinical history, too, these cases of scarlatina with primary diphtheritic throat affection are unlike true diphtheria, as they are rarely followed by croup or paralysis. We have notes of 123 such cases, and in only two of these was there croup and in only two was there paralysis.

On the other hand, scarlet fever is liable to be followed by secondary throat affections which in some cases are certainly true diphtheria. We have notes of four cases of this nature in which bacteriological examination revealed the presence of diphtheria bacilli. Clinically, also, some of these secondary throat affections are exactly like diphtheria in that they are apt to be very fatal and to be accompanied by croup or followed by paralysis. We have notes of three cases in which there was paralysis, eleven in which the membrane spread to the larynx, one in which there was membrane in the larynx

and subsequent paralysis, and another in which there was vulval, as well as faucial, diphtheria,*—sixteen cases in all. The presence of albumen in the urine is of little or no value as an aid to the diagnosis of these secondary throat affections, inasmuch as it may be due to the antecedent scarlet fever.

With regard to primary uncomplicated diphtheria, we have notes of eight consecutive cases in all of which the presence of the Klebs-Löffler bacillus was readily demonstrated.

Our observations tend to support the opinions of others (of which a *résumé* may be found in Dr. Klein's paper in the Report of the Medical Officer to the Local Government Board, for 1891–2) that a diphtheritic condition of the throat in the acute stage of scarlet fever is very rarely true diphtheria (though we are not prepared to say it never is), whereas similar conditions occurring during the convalescence from scarlet fever are very frequently true diphtheria.

In concluding, we must thank Mr. Pakes, of Guy's Hospital, who kindly made most of the cultivations under our direction.

* And in this case cultivations of the diphtheria bacillus were obtained from the deposit on the labia majora.

XV.—*Three cases of Giant-celled Sarcoma of the Radius.* By H. H. Clutton. *Read January* 26, 1894.

OF these three cases one involved the upper articular end, and two the carpal extremity of the radius. Two of the cases were treated by resection, with success, and one by amputation. The latter presented great difficulty in diagnosis, and was not thought at the time of the operation to be endosteal, but an infiltrating periosteal sarcoma. Possibly this case also might have been treated by resection.

Case 1. A man, æt. 28, sent to me by Dr. Heygate of Wellingborough, was admitted into St. Thomas's Hospital in November, 1887. He had suffered from pain and swelling of right forearm near the elbow for two years. At first the pain was only noticed after work, but during the six months preceding his admission into hospital it had increased without any manual work, and had been more severe at night than at other times.

Family history.—On his father's side, both grandparents had died of cancer.

On admission, November, 1887, the upper end of the right radius was found to be enlarged. The enlargement was almost globular in outline, exceedingly hard and resistant, as if it were entirely bony. There were no soft spots to be detected, and no pulsation. The movements of the elbow-joint were good, flexion and extension being almost normal, whilst pronation and supination were impaired only by "locking" of the two bones below the joint.

He was a pale, anæmic man, who stated that he had lost flesh considerably during last few months. His urine was found to contain one-sixth albumen, and casts, both granular and epithelial. It was clear, therefore, that he had organic disease of his kidneys.

On December 9, 1887, an exploratory operation was undertaken. An incision was made on the outer side over the most prominent part of the tumour. When this was fully exposed, a soft spot was found leading directly into the interior of the bone. The opening in the bone was enlarged, and a finger introduced. The upper end of the radius was then found

to be occupied by a soft, almost diffluent central growth. This looked to the naked eye like a myeloid sarcoma, and was proved to be so under the microscope, by Mr. Ballance, who kindly undertook the examination whilst the operation was going on. The radius was therefore divided an inch below the tumour, and the upper third of this bone tilted out of the wound and removed. The orbicular ligament was divided on the inner side, so as to avoid any incision over the posterior interosseous

FIG. 12.

nerve. Although the growth had invaded the head of the radius, it had not perforated the cartilage. A counter-opening was made on the inner side of the elbow-joint between the olecranon and the inner condyle. The wound was filled with iodoform gauze, and the skin on each side of the incision sutured to the muscles.

For some days after the operation the urine was distinctly smoky, but the amount of albumen and casts remained the

same. The wound healed rapidly, and was finally closed before the end of January. He had full power of flexion at the elbow, and extension to half the normal range. By the end of April he could move all his fingers, but the grasp of the hand was feeble. He had no paralysis. In June, 1888, six months after the operation, he came complaining of his eyesight. He was sent to Mr. Nettleship, who reported that he had albuminuric retinitis. He was attended by Dr. Heygate at Wellingborough, and slowly recovered. He was last seen by me in March, 1889, and was found to have a very useful hand and arm, without the slightest sign of any return of the tumour. His albuminuria was, however, on the increase and he died in July, 1889, eighteen months after operation—at home, where no post-mortem could be made. Dr. Heygate reported that at the time of his death no return of the tumour had taken place, and that the arm was in the same condition as at the time I had last seen it in March.

The specimen (see Fig. 12) is in St. Thomas's Hospital Museum, and is thus described by Mr. Shattock :—" No. 659. The upper three inches of a radius successfully removed during life for a giant-celled sarcoma. The tumour is about two inches in its extreme vertical and transverse diameters; it involves the interior of the head, which is increased in circumference and misshapen, but much of the articular cartilage remains intact." Microscopically it was a typical giant-celled sarcoma.

Case 2.—This patient, a man æt. 50, was sent to me by Dr. Stone of Reigate in July, 1891, and was admitted into St. Thomas's Hospital. For twelve months he had suffered from pain in his left wrist, especially after his work, which was that of a painter. He could give no explanation as to the cause. For the last six months he had noticed a swelling, which was steadily increasing in size. He had no "night pain," and only experienced inconvenience from his inability to work.

The lower end of the left radius was enlarged by a globular elastic swelling (see Fig. 13). This appeared to be an endosteal growth, for plates of bone could be felt on the surface, and here and there some soft spots where the tumour had perforated the bone. Neither "crackling" nor pulsation could be detected. The wrist-joint was free and movable, and there was no enlargement of the ulna.

I determined to resect the lower end of the radius if on exploration a soft endosteal growth was found to be the cause

of the swelling. I thought also that if this were done it would be best to take away a corresponding portion of the ulna so that the hand might be left in a straight line with the forearm. I was aware of Professor Annandale's case published with an illustration in the *Brit. Med. Journ.* for December 10, 1881, and thought that his objection to a flail-like wrist could be

FIG. 13.

overcome by a leather gauntlet, and that the result by excising both bones would be better than that obtained in his case where the radius only was excised and the hand brought round so that the carpus should articulate with the radial side of the ulna.

On July 25, 1891, an incision was made on the outer border of the radius, carefully preserving the tendons of the extensor ossis metacarpi and primi internodii pollicis. The swelling was soon seen to be due to a soft, almost diffluent endosteal growth. The tendons from the back and front of the radius were therefore dissected up and the lower end of the bone entirely freed from the surrounding tissues, the only tendon divided being that of the supinator longus. Another incision was made on the inner side, and the ulna treated in a similar manner. Both bones were then sawn through just above the upper limit of the growth. The wrist-joint was opened and an attempt made to remove the lower ends of radius and ulna in one mass. This proving impracticable without enlarging the openings, each bone was separately removed through its corresponding incision. On examination of the sawn section of the radius it was seen that a small nodule of growth was still left in the medullary cavity of the bone: Instead of removing another section with the saw, which most surgeons would think the safest line of conduct, the growth was scraped and gouged away from the end of the radius.

The wounds were closed with a continuous suture, and no drainage-tubes were employed. The first dressing was not

changed till August 10, sixteen days after operation, when the wounds were found practically healed. The fingers were left free, but the wrist was supported on a splint of gutta percha. In November he was ordered a leather gauntlet.

In May, 1892, he could approximate his thumb to his fingers, and grasp with a fair amount of strength so long as he wore the leather support. But without it his hand was useless.

FIG. 14.

The wrist after operation.

FIG. 15.

The hand after operation.

In October, 1892, fifteen months after operation, he could hold a pot weighing 9 lbs. for painting (see Figs. 14 and 15).

On May 2, 1893, there was no sign of recurrence of growth, and the strength of hand was steadily increasing.

The specimen (see Fig. 16) is in St. Thomas's Hospital Museum (No. 660B) and shows the lower ends of both the radius and the ulna. The tumour, which is central in origin, has expanded the lower end of the radius, which measures about two inches in diameter. The ulna is quite free. It will be seen in the specimen that the saw must have passed through the upper extremity of the growth.

FIG. 16.

Mr. Shattock, who kindly made the microscopical examination, considers it to be a giant-cell sarcoma. The naked-eye appearance is also characteristic of this disease.

It is particularly interesting to note that after the resection of the tumour some growth was removed by scraping and gouging from the medullary cavity of the sawn section of the radius. And yet there has been no return of the disease, although two and a half years have elapsed since the operation.

Case 3 is a specimen of sarcoma of lower end of the radius which might possibly have been treated in a similar way to the last case, as the history shows that the tumour had existed for nine years. Amputation was, however, performed

because the growth was thought to be fixed to surrounding tissues, and there was no evidence to be obtained of its endosteal character.

The patient, Miss T., æt. 34, was sent to me by Dr. Topping of Forest Gate, in January, 1890. She was a very small woman, almost a dwarf, with a history of some disease at eight years of age called rheumatism, which had resulted in grave deformity of both knees, right elbow, and right wrist.

Nine years before Dr. Topping sent her to me a very small lump was noticed in front of the left wrist. It had very slowly increased in size till the last three years, when the growth had been more rapid, and in the last three months it had nearly doubled in size. There was a curious history of attacks resembling inflammation in which the tumour suddenly increased in size and became very painful. These attacks lasted for a week or two, and then the tumour shrank again to its former size. There was no paralysis or abnormal sensation in the fingers, but she obviously suffered a great deal of pain in the wrist.

It was a very hard elastic growth in front of the left radius, to which it was thought to be attached as a periosteal or parosteal tumour. It projected on the back as well as on the front of the wrist, and was apparently invading the soft parts. Amputation was performed on March 26, 1890, and the wound healed by first intention. No recurrence of growth has taken place.

The specimen (No 660A) is in St. Thomas's Hospital Museum, and is thus described by Mr. Shattock:—"The section shows a few typical giant-cells, but widely separated in a finely granular basis in which lie multitudes of small round nuclei and in lesser numbers larger polyhedral or branching cells, of which the body is filled with fine orange-brown granules, and of which the nucleus is larger than the above, and finely granular, and of the connective-tissue type. There are similar granules free in the basis. The tumour may be classed as a giant-celled sarcoma in which extensive hæmorrhage has occurred, the greater number of the cells being leucocytes which have wandered or been attracted into the coagulum."

This description of the specimen by Mr. Shattock is particularly interesting in relation to the history mentioned above of "attacks resembling inflammation in which the tumour suddenly increased in size." It is probable that in

each attack a fresh hæmorrhage took place into the substance of the tumour.

The following cases of myeloid sarcomata of bone which have been treated by resection are recorded in this Society's *Transactions.*

In vol. x Mr. Morris records one in the lower end of radius. This patient is shown in vol. xxii to have been perfectly well thirteen years after operation.

Mr. Lucas also records a myeloid sarcoma of the lower end of the ulna in vol. x, which was treated in this way. The patient is stated in vol. xxii to have been well ten years after operation.

Mr. Sutton records in vol. xxiv a myeloid sarcoma of sternal end of the clavicle; also successfully treated by resection.*

* This patient was shown to the Society, February 23, 1894 (*vide* Living Specimen at end).

XVI.—*Nephrectomy (successful after fourteen months) for Malignant Tumour in a patient under two years of age.* By JOHN D. MALCOLM, M.B., C.M. *Read January* 26, 1894.

THE child, whose history I bring before the Society this evening, was placed under my care by Dr. Marshall, of Barnes, and Mr. Knowsley Thornton. She had a healthy family history, and was herself strong and well developed. It had been noticed that she had a "full belly" when she began to walk, before she was a year old. This was not thought to be of consequence till a definite swelling was felt in the right side six months later. The swelling steadily increased in size, and the child became less strong and lively, but she did not seem to suffer any pain. When admitted to the Samaritan Free Hospital on November 7, 1892, the child was rather pale, but all her functions seemed in good order. The nurses were not able to collect the urine for twenty-four hours together. It was, however, secreted freely, and no abnormality was discovered in it. Its specific gravity varied from 1010 to 1018.

The abdomen showed a bulging out of the surface over the whole of the right flank and hypochondrium, and well forward into the lower umbilical and hypogastric regions, where the outline of a rounded tumour was distinctly seen. The superficial veins on both sides were distended, especially towards the groins. On palpation, a well-defined, elastic, painless tumour, approximately oval in shape, and scarcely, if at all, moveable, was felt filling the right loin, and passing slightly beyond the middle line below the navel. It was close to the right lobe of the liver above, and extended towards the pelvis to below the level of the anterior superior iliac spine. On percussion the note was dull on the outer side of and behind the tumour, and over the most prominent part in front. The area of resonance overlapped the left side of the tumour so as to form two pointed projections, one between the abnormal dulness and that of the liver, and the other between the dulness of the tumour and Poupart's ligament.

On consultation with Sir Spencer Wells and Mr. Knowsley

Thornton, a renal tumour was diagnosed, and its removal was advised. The operation was performed on November 15, 1892, nineteen days before the patient was two years old. Having made an incision four inches long through the right linea semilunaris, and having found that the left kidney was, as far as could be judged, of normal size and shape, I divided the posterior layer of peritoneum outside the ascending colon which lay in front of the tumour. The loose anterior connections were easily separated, and the growth was squeezed through the opening in the abdominal wall, the greatest care being taken not to rupture its capsule. It was firmly held behind by strong bands of connective tissue, which were divided bit by bit, and then the growth was separated from a mass of glands and vessels on its inner side. The ureter was apparently quite healthy, and was divided near the kidney, the cut ends being carefully cleansed and secured in forceps. When the tumour was removed by the separation of a few more bands of connective tissue, it was seen that I had inadvertently opened the capsule behind. Although the shreds which remained had for the most part been on a healthy piece of kidney at the back of the tumour, I removed them all very carefully. The glands on the renal artery, some of which were very much enlarged, were then taken away in one mass with the surrounding fat, the artery being redivided at the deepest point reached by the knife. Some other glands close to the neighbourhood of the origin of the renal artery were also removed, but neither the aorta nor the vena cava was actually exposed. Numerous bleeding points which had been secured in forceps were tied with silk, the divided end of the ureter was brought outside the skin, and the wound was closed with silk ligatures without drainage. The supra-renal capsule was not seen during the operation. There was no difficulty at any time from protrusion of the intestines, as Mr. Stormont Murray, who gave chloroform, succeeded in keeping the patient quite quiet during the whole operation, which lasted one hour and twenty minutes. Antiseptic precautions were used throughout.

The child quickly recovered from the chloroform. The highest temperature and pulse were 101° F., in the axilla, and 144 respectively, and were recorded on the day after the operation. At the end of a week there was practically no fever. The patient was ill and peevish for two or three days, but was strong and took nourishment well from the first. The bowels were moved by a saline purge on the third day, and gave no trouble at any time. Much of the urine was lost.

It has been doubted by some authors whether the removal of neoplasms of the kidney from children, unless they are certainly not malignant, should ever be undertaken. Not only is the mortality from the operation very great, but those cases which have survived the immediate risks of surgical treatment seem invariably to have died of recurrence within a period to be measured by months. In the cases collected by Mr. Godlee, and published in our *Transactions** for 1884, in Dr. Newman's table published in 1888,† and in the table published by Mr. Bland Sutton in 1893,‡ the mortality is over 50 per cent. As regards recurrence, there is a case mentioned by Mr. Bruce Clark,§ in which Hicquet operated, and death did not take place till eighteen months later, but with that exception I have found no history in which it is stated that a child has lived as long as a year after an operation for the removal of a new growth of the kidney.

In view of these records, and of Mr. Targett's opinion of the nature of the tumour, I can scarcely hope that the child on whom I operated will escape the fate of the others whose cases have been published. She has, however, lived a healthy life for over fourteen months without any sign of recurrence, after the removal of a growing tumour which must speedily have induced serious symptoms from its size alone. The operation would, therefore, seem to be justified by the event in this particular instance, even if recurrence should take place in the future. Nevertheless it is clear that if nephrectomy is to be performed for new growths in children, a very careful selection of cases ought to be made, and it would seem that, as a rule, the surgeon should absolutely refuse to interfere. His difficulty is to pick out the few cases in which he may be justified in advising an operation.

In 1884 Mr. Godlee urged that, before an ultimate conclusion is come to as to the advisability of operating on these tumours, surgical treatment should be employed in a number of cases at an earlier stage of the disease, and with smaller tumours than that removed by him. The advantages of early operation will not, I think, be disputed; and Mr. Walsham has removed a renal sarcoma from a child nine and a half months old with temporary success.|| The operation might be undertaken even at an earlier age, but I have not been able to

* Vol. xviii, p. 36.
† *Lectures to Practitioners on the Surgical Diseases of the Kidney*, p. 450.
‡ *Tumours, Innocent and Malignant*, p. 120.
§ *Surgical Diseases of the Kidney*, p. 54.
|| *Brit. Med. Journ.*, 1893, vol. i, p. 694.

satisfy myself that in those cases in which the longest immunity from recurrence has been observed the tumours were specially small, or that the operation had been more promptly arranged than in the less successful cases.

I would be inclined to look rather for guidance in treatment to a careful study of clinical histories and of the microscopic structure of the specimens removed. Mr. Targett calls the tumour in my case a "malignant adenoma," but pathologists are by no means agreed as to the classification of these growths. It is only a few years since they were indiscriminately described as cancers, while at present the tendency is to call all the malignant ones that occur in children sarcomata. Under this heading Mr. Bland Sutton includes those which consist of tubes lined by epithelium, such as are described in the case now reported. Bland Sutton says that these tumours invariably contain cells simulating striped muscle-cells, and these cells are numerous if the tubes are few, but scanty if the tubes are abundant. When these muscle-cells are the most prominent feature of the growth it must closely resemble a spindle-celled sarcoma; but when the tumour consists mainly of tubes lined by epithelium it seems hardly correct to describe it as a connective-tissue neoplasm.

In the tumour described for me by Mr. Targett no striated cells have been found, and I think I am correct in stating that no new growth of the kidney of precisely similar structure to this one has been removed during life and described. The fact that the removal of a tumour presenting uncommon microscopic characters has been followed by an unusual period of immunity from recurrence suggests the idea that the success—I should perhaps rather say the comparative success—of the operation is due to the nature of the growth. If this view should be supported by observations on future cases, and if it could be shown that certain clinical features are constantly associated with peculiar structural characters in the tumour, valuable indications for scientific treatment would be available. Accumulating experience may lead us to such indications, but at present we can only look to those characters which guide us in the diagnosis, prognosis, and treatment of new growths elsewhere. The more definite the outline of the tumour to palpation, the more mobile it is, the slower its growth, and the better the state of the patient's general health—in fact, the stronger the evidence that the patient is only locally affected—the more likely is operative treatment to be followed by prolonged immunity from the

disease. Cases may be observed, on the other hand, in which the tumour has no definite outline, being fixed to and incorporated with the neighbouring structures, so as to be absolutely immobile, being also of very rapid growth, and accompanied by extreme emaciation. Such cases are obviously unsuitable for surgical interference. It does not follow, however, that these latter conditions indicate an advanced stage of the more defined, more mobile, and more slowly growing tumours. The evidence seems rather to show that the symptoms, sometimes at least, depend on the nature of the growth, and that the cases are favorable or unfavorable for surgical treatment from the first.

Although I incline to the belief that the structure of the growth in the case under consideration is a principal factor in the success which at present attends the treatment, yet the methods of operating on such tumours are also worthy of our close attention. It may be questioned whether I was justified in prolonging the operation and running the risk of damaging important structures by attempting to remove glands which were not obviously diseased, especially in view of the fact that the tumour might fairly have been presumed to be a sarcoma, and therefore probably would not tend to spread along the lymphatics. I could, however, only decide what to do by the naked-eye conditions observed, and the glands near the kidney were certainly enlarged and hard. Moreover the records seem to teach that if a surgeon undertakes to perform this operation he should do it in a most thorough fashion. In spite, therefore, of the fact that no distinct evidence of disease has been found by microscopic examination of the lymphatics which I removed with the tumour, if I should meet with a similar case in the future I would certainly take away as many of the glands as possible.

It was also in view of the intensely malignant character of these growths that I endeavoured to avoid opening the capsule of the tumour, and to remove all vestiges of it which had accidentally been separated. The importance of this point has been strongly urged by Mr. Knowsley Thornton. On the other hand, Mr. Henry Morris and Mr. Bland Sutton advise that in operating on solid tumours of the kidney the surgeon should cut down on the growth, should carefully open the true renal capsule, and should enucleate the tumour from within it. When we have to deal with a growth which is probably malignant, and which is surrounded and sharply defined by a firm fibrous capsule—if we have a choice between, on the one hand,

enucleating the growth from within its capsule, and, on the other hand, removing the growth and its capsule without opening the latter,—there can, in my opinion, be no hesitation as to which of the two methods should be adopted. If, further, we remember that the operation for the removal of the tumours under consideration, when not directly fatal, has an unbroken record of death from recurrence, the evidence seems conclusive that the surgeon, in performing this operation, must not leave any portion of the renal capsule which has been in direct contact with the tumour if he can possibly remove it. To cut as widely of the growth as he can is the only scientifically sound method in view of the pathology of the disease, and therefore the only method by which we are likely to secure an improvement in the results of the operation in the future.

The manner of dealing with the divided end of the ureter is also a matter of great importance in nephrectomy. Some surgeons pay very little attention to this, and tie the ureter separately, or in one mass with the vessels, as is more convenient or easier in the particular case. Others adopt the plan introduced by Mr. Knowsley Thornton, and bring the divided end of this duct outside the incision. When there has been much perirenal inflammation there may be no choice but to tie the ureter and leave it at the bottom of the wound. In many cases, however, and especially in the great bulk of cases of renal neoplasm, the divided end of the ureter can be easily brought outside the skin, either at the anterior incision or through an opening made for the purpose further back, without any undue stretching, and without any risk of causing an obstruction of the bowels. By bringing the open end of the ureter outside, every chance of fouling the wound by the contents of this duct, and very often the necessity for using a drainage-tube, may be avoided. If there be no tube in the wound much less after-disturbance is necessary, a point which is all-important when we have to deal with a child. For these reasons the securing of the cut end of the ureter outside the skin is as desirable from a clinical point of view as the removal of the tumour complete within its capsule is essential from the standpoint of the pathologist.

I have much pleasure in expressing my thanks to Mr. Targett for the sections he has shown to the Society, and to Mr. Bousfield for his beautiful photograph. I also desire to acknowledge the kindness of Sir Spencer Wells and Mr. Knowsley Thornton in advising me in this case, and in thus sharing to some extent the responsibility of the operation.

XVII.—*Multiple Epitheliomatous Growths developing in a case of Psoriasis which had been treated with arsenic for more than thirty years.* By W. Arbuthnot Lane, M.S. *Read February* 9, 1894.

THE following case is of much interest, since it illustrates remarkably well the manner in which epitheliomatous formations may apparently result from the prolonged administration of arsenic. This causal connection between the drug and the growth formation was, I believe, first described by Mr. Jonathan Hutchinson.

The particular interest of this case consists in the multiplicity of the growths which developed, and as I do not remember having read of any similar one, I think it is of sufficient interest to bring before the Society.

W. C., æt. 63, was admitted in April, 1892, into Guy's Hospital under my care for an epithelioma, which was situated on the lower third of the back of the forearm. There was no glandular enlargement. The growth was about two inches in diameter. It was freely removed.

While in the hospital he made no mention of having suffered from skin eruption, and none was observed. He stated that a small nodule appeared in the position of the centre of the epitheliomatous growth, and that later three distinct similar masses formed about it. These all fused together to form the tumour I removed.

He was readmitted into Guy's in March, 1893, covered with patches of psoriasis, which he then told us he had had off and on since infancy, and that his father had suffered in the same way. He had for the last thirty years attended the skin department of the hospital, and during the whole of this time he had taken arsenic in the form of Fowler's solution.

During the last seven or eight months he had noticed on his scrotum three patches which resembled the primary patch on the forearm, and one of these he believed had developed in a portion of the psoriasis eruption. This, however, was very doubtful. When I saw him I found three distinct epitheliomatous ulcers, each about the size of a threepenny

piece, and separated from one another in one case by one inch and in the other by about two inches. These were excised, the wounds healing rapidly and perfectly.

He was directed to give up the arsenical preparation which he had taken for so long, and to return should he observe anything of a suspicious nature.

As he did not come to see me I wrote for him in December, 1893, when I found two little indurated patches in the scrotum lying parallel to one another on an anterior plane to the last removed. They were separated from one another and from the most anteriorly placed of the last by about an inch. They measured a quarter of an inch in diameter, and were not ulcerated on the surface as the others had all been.

He said he had observed them for three or four months at least. They were removed, and when examined microscopically were found to be small epitheliomas.

Again on January 22, 1894, two more small epitheliomas were removed from the scrotum, one being in the immediate vicinity of a growth which had been removed very freely on a preceding occasion. This appeared to have started about the holes through which the horsehair suture passed, which had been overlooked and not removed. The other was at a distance from any of the other growths.

This patient has up to the present date had eleven separate foci of malignant growth, four appearing on the forearm over an area of two inches square, and seven on the perinæum and scrotum; and in only one of these, which was situated immediately in front of the anus, did he suspect that the growth developed in a patch of psoriasis.

There is no reason to suppose that these small epitheliomas will cease to develop, and as far as I can see the only treatment I can suggest is to watch for them and remove them as they appear. He has taken no arsenic since March, 1893, but the cessation of the drug does not seem to have stopped the formation of the epithelial ingrowths. Why they should at one time be limited to a comparatively small area of the forearm and now to the scrotum and perinæum does not seem very obvious.

XVIII.—*Case of Acute General Suppurative Peritonitis secondary to Appendicitis: removal of Appendix: recovery.* By W. Arbuthnot Lane, M.S. *Read February* 9, 1894.

I WILL make no apology for bringing this case before the Society, since it is full of interest to the physician as well as the surgeon, for the reason that the operation in no way affected the course of the acute general suppurative peritonitis, which subsided solely under medical treatment. Whether the intensely inflamed appendix would have subsided without operative interference, or whether it would have kept the peritonitis alive by a further supply of micro-organisms, or whether it would have become gangrenous, it is impossible to say. In any case, however, the removal of the appendix has freed the patient from a recurrence of the risks to which this attack exposed him. The favorable termination of the condition of peritoneum which was exposed at the time of the operation is, in my experience, quite unique, and must be attributed, I presume, to some want of virulence of the micro-organisms which produced it.

For the following details I am chiefly indebted to Dr. Shute, to whose care and attention the recovery of the patient is chiefly due.

E. B., æt. 18, had three years ago an attack of acute abdominal pain, which confined him to bed for a week. There was no particular pain, tenderness, or fulness in the right iliac fossa. A year ago he had a similar attack, for which he was in bed for three or four days.

The onset of the present attack was much less sudden and severe than those preceding it.

On September 1, 1893, and on the day following, he suffered from slight pain in the stomach, but did not feel at all ill. He attended to his duties, taking his food well, and on 2nd inst. playing croquet and going for a long walk in the g. He went to bed feeling quite well.

ween six and seven on the morning of September 3 with diffused abdominal pain, which persisted and him from continuing his sleep. He could not eat

his breakfast. His bowels were opened freely, but the pain continuing he took a dose of castor oil, after which the pain increased considerably in severity. As the parents were unable to relieve his pain by the use of hot fomentations, &c., Dr. Shute was asked to see him at two o'clock the same day. He found him lying on his back with his legs extended. The tongue was dry and brown, the feet and legs cold, and the breathing entirely thoracic. He had been sick once after the castor oil. The abdomen was very tender, and so rigid that nothing could be felt. Fomentations and heat were applied, and morphia was administered frequently.

On September 4 his condition was worse.

On September 5 all his symptoms had increased in severity. At 1.30 I saw him with Drs. Shute and Crook. He was then much collapsed, the breathing was entirely thoracic, the abdominal muscles were extremely hard and rigid, and the abdomen was somewhat distended and very tender on pressure. Owing to the resistance offered by the muscles nothing could be felt.

We concluded that the patient was suffering from acute general suppurative peritonitis due to rupture of an abscess about an inflamed appendix, and though we felt that for such a condition operative interference offered an extremely small chance of recovery, we determined to do what we could without delay.

After morphia and chloroform had been administered we were much struck by the fact that when under complete anæsthesia the abdominal muscles remained as rigid as before. A long median incision was made, when a small quantity of creamy pus appeared between the edges of the peritoneum. On retracting the sides of the wound the viscera were seen to be intensely injected, to move freely upon one another, and to be covered by a very thin layer of pus, which formed in lines where the intestines or other viscera came temporarily into apposition. No adhesion could be felt in the general cavity, and the intensity of the inflammatory process was as marked in one part of the abdomen as it was in another. There was no collection of pus in the pelvis. On examining the right iliac fossa a very large appendix was felt lying immediately internal to the anterior superior spinous process. An incision was made over it, when it was examined more fully. It was then seen that an abscess had existed about the appendix, and that it had ruptured and brought about the general peritonitis.

The appendix was as large as one's thumb, and intensely livid. After it was removed it was carefully examined, and though covered with lymph it was perfectly intact and had no smell whatever.

The advisability of washing out the peritoneal cavity was discussed, and it was considered that no benefit would be derived from it, since irrigation to be sufficiently thorough to wash away even a proportion of the pus would, owing partly to its universal diffusion and partly to the extremely rigid condition of the abdominal walls, in all probability only result in the death of the patient on the table. Again, there was no reason to suppose that if all the pus could be removed the intense inflammation of the peritoneum would subside.

It was also felt that the introduction of a drainage-tube or tampons of gauze would serve no useful purpose, but would would rather add to the risks of the patient, so it was determined to sew up the wounds, to keep the casé under morphia, and to feed almost entirely by the rectum. The chance of such an acute general suppuration of the peritoneum subsiding and the patient recovering appeared to us very small.

The patient improved very slowly but steadily after the operation, so that by September 15, when the stitches were removed, the abdominal muscles had lost their rigidity, and the patient breathed pretty freely with his abdomen. He is now perfectly well.

On dividing the appendix longitudinally the muscular and mucous coats were much hypertrophied, and the whole thickness of the bowel was enormously increased by the very acute inflammatory process. There was nothing found in its interior beyond a little fluid fæces, and there was no evidence of constriction anywhere.

XIX.—*Peculiar Fungating Growth of Penis (anomalous granuloma ?), lasting nineteen months.* By JOHN R. LUNN. *Read February* 9, 1894.

GEORGE T., æt. 31, porter, was admitted under my care August 24, 1892. The following is a general account of his illness as given by himself.

In January, 1891, he became a patient of the Holborn Infirmary for a short time, on account of a soft sore on his glans penis. The sore healed, and he was discharged as cured. A month later a hard chancre appeared on the external surface of his prepuce. Three months after this a small nodule appeared on the dorsum of the penis near the root; this broke down and left a small shallow ulcer.

In December, 1891, the patient was admitted into Highgate Infirmary; for several months previous to admittance he had treated himself without seeking medical advice. At Highgate Infirmary he remained for two months, and left apparently cured, having been circumcised, and having had the ulcer scraped and cauterised; this was in consequence nearly healed.

In March, 1892, about six weeks after leaving the Highgate Infirmary, he noticed on the line of circumcision at the base of the glans penis that ulceration was beginning, and that the ulcer was covered with unhealthy granulations. These gradually extended until they reached all round the circumference at the corona; the ulcers on the dorsum near the root, which had never been entirely healed, began to spread with rapidity, and the parts were very painful.

The patient went into the Lock Hospital in April, 1892, when the granulations were scraped and red wash was applied for about a fortnight. The ulceration appeared to be healing, but the granulations soon began to re-form. He was then cauterised with HNO_3, which caused him much pain, and as the patient did not improve, he left the hospital in July against advice. The mass was apparently thought to be epitheliomatous, and amputation of the penis was advised, but he refused to undergo the operation. He remained at home until August 24, 1892, when he was admitted into St. Marylebone

Infirmary. At that time there were some signs of doubtful phthisis at his right apex. On admission there were a mass of unhealthy granulations all round the corona of his penis and covering his glans penis, a large raw granulating surface on the dorsum of his penis near the root, and several small nodules on the scrotum (near where it joins the skin of the penis on the under surface). Some of the nodules were breaking down, leaving small painful ulcers, the nodules apparently being due to the affection of the sebaceous follicles, and there were also present some doubtful amyloid glands in both groins (inflammatory).

The patient was suffering intense pain, especially on passing urine. The surface of the glans penis was raw, and covered with small granulations.

On September 7 the granulations were curetted under an anæsthetic, and for a time things appeared to be going on well, but soon the granulations reappeared; fresh small nodules on the dorsum and scrotum formed, discharged, and broke down, and the old ulcers rapidly spread at their edges.

Injections of morphia were given to relieve the pain. Iodoform and cocaine ointment were applied, and a mixture of iodide of potash gr. xx with mercury was given.

On November 10 the parts were again curetted, and most of the glans penis was removed; it being friable and softened, the cautery was applied. There was a fistulous opening into the urethra, near the root of the glans penis on the upper surface.

The patient was kindly seen by Mr. John Hutchinson and others, who were inclined to think that the condition was due to syphilis or tubercular disease, and they all advised large doses of mercury with continuous irrigation. The latter was carried out for two days and nights, but was necessarily discontinued then, as the patient complained of such intense pain, though the effect on the penis was very marked, and the patient was rendered much more comfortable, though he still complained of great pain on passing water and on dressing his penis. The raw surface again became covered with exuberant granulations, and the condition became almost as bad as ever. At this stage the patient's general health began to fail, his temperature rose to 102° F., and his life appeared a perfect misery. On December 4 and 24, 1892, the granulations were again scraped on two occasions, a catheter being left in two days on each occasion; still the condition got worse, and it was decided as a last resource to amputate the

penis. This was done by my colleague, Dr. Nix, on January 25, 1893. The scrotum was split in the median line, the crura were cut off near their insertion into the pelvic arch, the urethra was cut off, and the end brought out behind the scrotum.

The inside of the penile portion of the urethra was diseased, and the granulations spread back several inches. A catheter was fastened in for some days; the wound healed well, and the patient appeared much more comfortable.

A few days after the operation the patient began to suffer from swollen glands under his jaw on both sides, and his temperature went up to 102° F. A gland near Poupart's ligament (inner end) on the left side became much enlarged, the suppurating glands under the jaw were incised, and some bad teeth were removed, but the condition under the jaw did not improve, and so on March 2, 1893, the patient was given an anæsthetic, and the glands under the jaw were scraped, and some glands in the left groin excised. The wounds in the groin healed up, but more glands under the right jaw enlarged and suppurated. These were opened May 15; the swelling was thought to be due to salivation and bad teeth from the amount of mercury he had taken.

The patient at last began to improve, all the wounds healed, and he was discharged cured June 10, 1893. Since then he has had no recurrence of the disease, and when I last saw him, November, 1893, his general health appeared to be good.

Mr. Targett has kindly examined the penis removed, and sent me the following account from the College of Surgeons. The extremity of the organ is converted into an oval lobulated tumour, two inches in its chief diameter. The pigmented integuments at the margin are raised and undermined, and near the base of the tumour several white tubercles are seen protruding through the skin. On the reverse of the preparation the urethra has been laid open, and its lining membrane is much ulcerated and nodular, the glans penis being indistinguishable. The careful sections taken from the edge of the growth and glands removed from the groin are composed of cells with large round nuclei and numerous capillary vessels as in granulation tissue, and it appears as an anomalous granuloma.

Remarks.—1. In Holmes' book on surgery it is stated that by far the larger proportion of the affections of the penis are connected with and depend upon gonorrhœa or syphilis; a few innocent ones, such as warts, nævi, and fibro-cellular growths,

may also be mentioned, and those are said to form a connecting link with sarcomata, though this is very rare. It is also stated that epithelioma frequently begins in the glans penis at the junction with the prepuce, and is then an irregular warty excrescence with secondary glands in the groins.

2. My case appeared, when first observed by me, to be syphilitic in character, but the patient had no secondary symptoms, and the disease did not abate under antisyphilitic treatment. At one time it was thought to be tubercular, there having been some doubtful old mischief at the right apex of his lung, but no tubercle bacilli were to be found in his sputa, growth, or discharge from the penis.

Mr. Bertram Robinson also kindly examined the tumour, but could not find any tubercle bacilli, and thought histologically it was made up of granulation tissue, and strongly suggests its tuberculous nature.

I am indebted to Dr. Basil Woodd Walker for the very accurate water drawing of the case; and to my colleague, Dr. Nix, for the extreme interest and attention he took in the case and the assistance he afforded me throughout.

My case is interesting on account of the length of its duration, and not improving under palliative treatment and repeated operations. Mr. John Hutchinson, who kindly saw the case, said he had never seen a similar case, and this was why I wished to put the notes of the case before this Society.

Mr. Lane has reported a similar case to mine in the *Pathological Transactions* of 1893, vol. xliv, pp. 105 and 106, which is described as an extensive, rapidly destructive papilloma of the penis.

DESCRIPTION OF PLATE I,

To illustrate Mr. John R. Lunn's Case of Peculiar Fungating Growth of Penis.

The glans penis and corona were covered with unhealthy granulations; a large raw granulating surface was seen on the dorsum of the penis near the root, and several nodules on the scrotum. Some were commencing to break down, and there appeared to be some affection of the sebaceous follicles.

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B. W. Walker del.

XX.—*A Case of Diphtheritic Paralysis suddenly fatal in a very unusual manner.* By W. Hale White, M.D. *Read February* 23, 1894.

ALPHEUS B., æt. 47, a carter, was sent to London by Dr. Briscoe, and admitted into Guy's Hospital September 5, 1893 (clinical clerk Mr. E. Van Sommern). Ten weeks ago he had faucial diphtheria; two of his children died in his house of the same disease just previous to his being attacked. He became convalescent in seventeen days, three weeks from which time he began to notice that he had tingling and numbness in his hands, fingers, feet, and toes, that fluid taken into the mouth was returned through the nose, that he spoke thickly, and that his legs and arms were weak.

On admission.—He is unable to walk, but is very healthy-looking.

Nervous system.—Motor.—He is able to move his arms and legs, but there is very marked loss of power in all his limbs and in all movements of them. His grip is very feeble. There is impaired movement of the abdominal wall on inspiration. No wrist- nor ankle-drop. When he swallows liquids immediately after the ingestion of solid food, the fluid regurgitates through his nose. His palate is paralysed. When he says "Ah!" the right palatal arch becomes elevated slightly, while the left does not move. He evidently has some laryngeal trouble, as his defect in speech can hardly be wholly accounted for by the paralysis of the palate. The larynx cannot, however, be satisfactorily seen on account of the large quantity of saliva and mucus in the mouth.

Sensory.—All varieties of muscular sense are unimpaired. Tactile: there is slight impairment of sensation in the tips of the toes, and also on the plantar aspect of both feet. Otherwise tactile sensation is normal. Pain: sensibility to pain is quite unimpaired. Heat and cold: sensation to these is normal, except that it is absent on the tips of the toes of the left foot, and impaired on the tips of the toes of the right. Pain on pressure is not felt anywhere except slightly in the calves and on the outer sides of both feet.

Reflexes.—Knee, plantar, wrist, and elbow all absent: no clonus.

Trophic changes.—Little if any wasting of muscles. No skin changes.

Electrical reactions.—Reaction of degeneration can be obtained in some of the muscles.

Circulatory system.—Pulse regular, 75. The heart is apparently quite healthy.

Respiratory system.—A few râles and rhonchi indicative of chronic bronchitis can be heard. No paralysis of diaphragm observable. His appetite is poor.

He was treated with mercury and iodide of potassium and subcutaneous injections of strychnine. He appeared to improve although slowly. On two occasions he complained of sharp pain in the heels, and once the digital nerves of the toes seemed tender.

September 19.—This afternoon he was drinking some tea, when he suddenly began to cough; this soon stopped, and the patient was very distressed in his breathing, sitting up in bed and panting for breath with a distended chest and expiratory dyspnœa,—looking, in fact, just like a patient in an asthmatical paroxysm. The pulse was good and regular. There was no stridor, and no indication whatever that the larynx was obstructed. The difficulty of breathing got worse, the patient became gradually livid, and in ten minutes from the first onset of the attack he was dead. The pulse continued to beat well till the end.

Autopsy.—There were old pleuritic adhesions and a little emphysema. The larynx was clear, nothing was impacted in it, but there poured out from the two main bronchi about one and a half fluid ounces of a light brownish tea-like fluid containing minute particles of clotted milk. Otherwise the body appeared to the naked eye perfectly healthy.

I saw the patient while in the fit, and thought that owing to muscular paralysis or anæsthesia, or both, some tea had got into the bronchi, and so had caused spasm of most of the bronchial tubes. As far as the post-mortem could explain anything it accorded with this view, and showed that we were justified in not performing tracheotomy. I thought that every minute the spasm would pass off like an asthmatic paroxysm. He would not let us go near him, and was in such distress that, all things considered, we did not turn him upside down; and probably it would have been of no use, for the passage of the tea back again might have increased the spasm.

This case has very many points of interest—as, for instance,

the long period between the diphtheria and the onset of the paralysis, the wide extent of the paralysis, the unilateral paralysis of the palate (of which I recorded an instance in this Society's *Transactions* last year), and the loss of muscle sense; but none of these are rare enough to have justified me in bringing the case before this Society. The mode of death is, however, very infrequent.

Readers of the very complete article on the subject by the late Dr. Ross (*A Treatise on Peripheral Neuritis*, by Ross and Bury) will remember that in only two* out of 171 cases collected by him was death due to food getting into the air-passages, and then the cause of death was the actual impaction of solid food.

It is true that occasionally death in diphtheritic paralysis is stated to be due to asthma, but that term is used in a vague sense; often no doubt it means bronchitis, especially as, from paralysis of the respiratory muscles, these patients are very liable to bronchitis, and often no doubt it means death from cardiac dyspnœa. As far as I am aware it is excessively rare for death in diphtheritic paralysis to take place from spasm of the bronchial tubes due to the irritation of food, as I believe it did in my case, which is interesting not only on this account, but also because, as the paroxysm so exactly resembled one of asthma, it goes to show that in this disease we have to deal with a spasm of the bronchial tubes. No doubt the weakness of the abdominal muscles helped to the fatal result, for had it not been for this the patient might have been able to expel the tea by coughing, which indeed he attempted. Then also it is probable that weakness of the muscles of deglutition allowed the tea to get to the larynx, and their defect was perhaps made the more important by some faucial and laryngeal anæsthesia.

* *Vide L'Union médicale*, 2nd series, tome iv, 1859, p. 4, and *Lancet*, vol. i, 1866, p. 33.

XXI.—*Multiple Infective Neuritis.* By Frederick W. Mott, M.D. *Read February* 23, 1894.

Wm. H., æt. 34, a fruit salesman, was admitted into Charing Cross Hospital April 26, 1893, for kidney complaint. The family history was not good, but beyond the fact that the father died at thirty and the mother at fifty-six of heart disease, and that he is the sole survivor of a family of eight, there is nothing which could throw light upon his present illness. There is no history of *any disease* except measles when he was a child, and he denies having had gonorrhœa or syphilis. He drinks a quart of beer a day. About five months ago he suffered with sickness in the mornings. His present illness commenced a month ago with severe bleeding from the nose, which lasted about six hours; the nose had to be plugged. Last week the bleeding came on again, but was not so severe.

On April 21 he had pain and swelling of the right ankle, then of the right knee, then pain extended to hip-joint, abdomen, arm and hand of the same side. For some time past he has had night sweats.

Condition on admission.—Patient complains of great pain in the right ankle and knee, right hand and arm, round the loins, and in the lower part of the abdomen; the left leg and left arm and hand seem stiff when moved. He perspires considerably, and the temperature varies between 100·6° and 103·2°. The pain is continuous, but much aggravated by movement. The right leg is swollen, red, and œdematous; the knee-joint is hot, swollen, and contains fluid, also the right ankle, but to a less degree. The right hand is red and swollen, and the pain which exists in it extends up to the shoulder. *The patient can scarcely raise his arm.* He has had pains in the back of the neck, but they are now gone. Examination of the chest reveals no physical signs either in the heart or lung. Urine acid, sp. gr. 1018, contains half albumen and blood.

April 28.—Pain this morning rather better, right knee not quite so much swollen; there is slight œdema and redness of the left leg on the outer side, but no swelling of left knee-joint.

April 29.—Patient not so well. Temperature rose last

night to 103°. Redness and œdema of left leg have now disappeared, but the patient complains of pain in the right arm, which is swollen, red, and œdematous from the middle of the arm to wrist. The swelling of right leg persists. Of albumen only a small quantity is present in urine. Sodii Salicyl., grs. xv, 4tis horis. At night the patient became delirious.

April 30.—Patient still delirious, but pain in joints less. Erythema and œdema of right arm more pronounced. A little hypostatic congestion of both bases.

May 1.—Cough; expectoration streaked with bright blood. Temp. 102°.

May 2.—Salicylate discontinued, and a mixture containing carbonate of ammonia, acetate of ammonia, and citrate of potash given. Temp. 103°. Tepid sponging brought temperature down to 101·8°.

May 3.—Diarrhœa; stools numerous and contain blood. Expectoration is blood-stained. *Typhoid fever diagnosed.* Tongue dark brown, dry and cracked; no subsultus. *Loss of power in the right hand noticed* for the first time. No enlargement of spleen. Erythematous patches appearing on left arm. Enemata of starch and opium ordered to check the diarrhœa. It was now noticed that the *knee-jerk on right side was absent.*

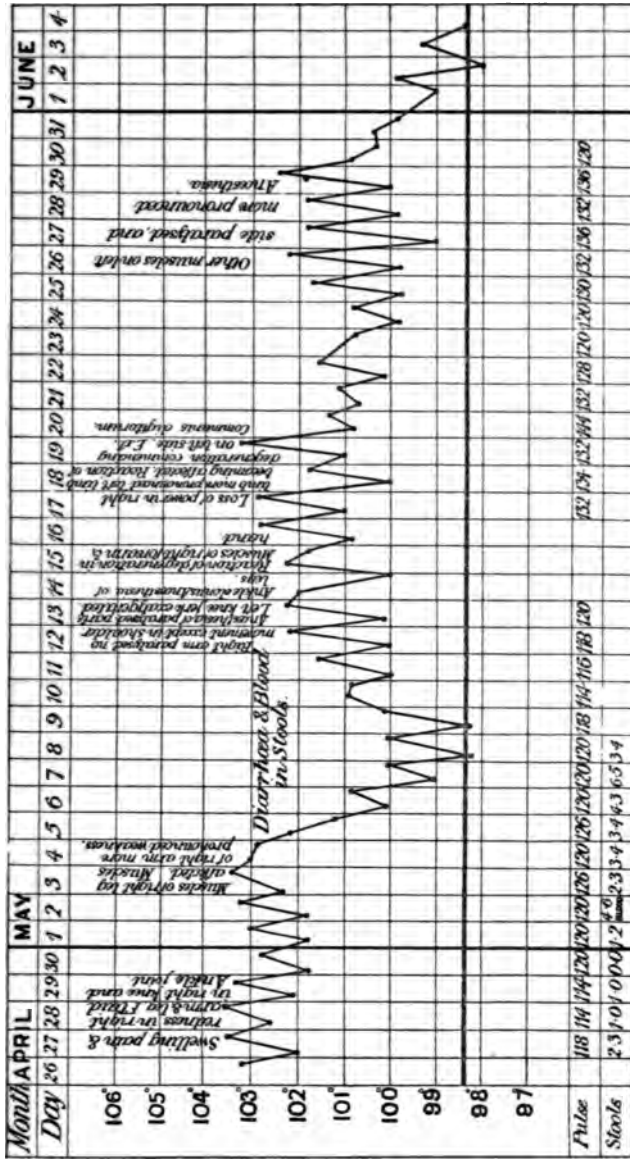
He remained much in this typhoid condition, and on May 11 the following notes were taken:—Diarrhœa still continues, but no blood in stools. Right arm powerless, no movement except in shoulder; no rigidity. Loss of tactile sensation in hand and arm, blunting of painful sensation. Patient drowsy. Left arm and hand in position of wrist-drop; no alteration in sensibility. Right leg: knee-jerk very faint, plantar reflex lost; some loss of sensation on the inner side of leg. Left leg: knee-jerk exaggerated, slight ankle-clonus, no affection of sensation. Absence of cremaster, abdominal, and epigastric reflexes.

Having been requested by Dr. Green to see the patient I did so, and found none of the muscles of the right forearm responded to faradic current;* the thumb muscles did not respond to galvanic current, and with most of the muscles of the forearm KCC = ACC, or ACC is greater than KCC. The left arm showed commencing electrical changes. The ext. communis. digit. did not respond to faradism, and KCC = ACC. These facts, together with the loss of sensation in the right hand and arm and impaired sensation of the left, together with similar but not so pronounced electrical changes

* *Vide* full report, Appendix II.

in the lower limbs, made me diagnose *peripheral neuritis.* He remained much in this condition, with occasional remissions of the pyrexia. Blood and albumen were frequently found in the urine, and the wasting of the muscles of the limbs and loss of sensation in the parts paralysed increased. It appeared that *fresh symptoms of paralysis occurred coincidently with the exacerbations of the fever* (*vide* Temperature Chart).

The patient became more helpless day by day, and rapid wasting of the limbs occurred. The joints became stiff and the fever continued, though not so high. *He had no loss of power over the rectum or bladder.* The pyrexia continued until nearly the end of July, gradually becoming less marked, but with occasional exacerbations. During the month of June I made frequent examinations of the blood and urine. The former always contained a great excess of leucocytes, and film preparations of the blood stained with methylene blue showed micrococci. Cultivations were made from the blood obtained by pricking the finger. The following precautions were taken to obviate accidental contamination. The finger was well washed with soap and water, then wrapped up in lint soaked with carbolic acid solution, then washed with alcohol and then with ether; when the latter had evaporated the finger was pricked. Dr. Arkle assisted me, and he has furnished the accompanying report. We tried inoculation of rabbits with the germs and with a solution of the chemical products of their growth in alkali-albumen, but beyond a rise of temperature for a few days nothing occurred, and the animals are still alive and well. The urine was invariably acid, but always contained, when I examined it during the pyrexia, micro-organisms, blood-corpuscles, pus-corpuscles, and albumen. The genito-urinary tract was the only portion of his body in which a possible source of infection was discovered. He denied having had syphilis or gonorrhœa, and there was no reason to doubt his word, being a respectable married man with healthy children. The fact that he was sent by the practitioner to the hospital for kidney disease, taken together with the facts I have related as regards the urine, would warrant the possibility of pyelitis being the source of the septic infection, and the neuritis the result of septic absorption from this source. The presence of micro-organisms in the urine, which, however, were not tubercular, is not a proof that they came from the kidney, for it is well known that the urine is a means of elimination of organisms from the blood in various septicæmic processes. Moreover


Month
Day
APRIL
MAY
JUNE
106°
105°
104°
103°
102°
101°
100°
99
98
97
Pulse
Stools
Swelling pain &
Reflexes ur right
Patellar lg. Ffield
Ur right knee and
Ankle joint
Muscles of right up
affected. Muscles
of right arm more
pronounced weakness.
Diarrhoea & Blood
in Stools.
Right arm paralysed no
movement except in shoulder
Lower half paralysed pain
Left knee jerk exaggerated
Atrophic muscular wasting of
legs
Muscular degeneration in
muscles of right forearm &
hand
Loss of power in right
hand from paralysed left limb
becoming atrophic. Reaction of
degeneration commencing
on 1st side. E.D.
Commence diaphoresis.
Other muscles on left
side paralysed and
more pronounced
Athetosis.

the diarrhœa and hæmorrhage from the bowels, associated with a fall in the pyrexia, would suggest that this was also an attempt to rid the blood of a toxic agent. Whatever the source of septic infection was, and whether much or little value can be placed upon the presence of micro-organisms and their cultivation when the blood is obtained by skin puncture, yet the *clinical picture* is sufficient to warrant one in assuming that *the neuritis was the consequence* of the production and absorption of the toxic chemical products incidental to the growth of micro-organisms. The pyrexia lasting two months, with chills, sweats, and exacerbations—each of which appeared to be associated with fresh nervous symptoms,—the sudden swelling and pain in the joints, the erythematous rash and œdematous patches over painful parts of the limbs, the albuminuria and hæmorrhage from the nose, the kidneys, and the bowels, with diarrhœa associated with some subsidence of pyrexia,—all point to the septic origin of the *affection of the peripheral nerves*, and agree with the clinical picture given by Strümpell and Eichorst.

That the poison affected the peripheral nerves and not the spinal cord, producing a multiple neuritis, is shown by the paralysis and loss of sensibility going together, by the affection of the extremities first on one side, then on the other, and by the absence of affection of the bladder and rectum.

The first observations on primary multiple degenerative neuritis were made by Dumenil in 1864–6. Since then a whole series of cases have been published by Eichorst, Eisenlohr, Leyden, Joffroy, Vierordt, and Strümpell.

These cases undoubtedly correspond very closely with beri-beri; moreover they may be confounded with acute ascending paralysis.

The existence of micro-organisms in the blood supports the title of "multiple infective neuritis." Dr. Kanthack was good enough to examine these organisms, and furnished me with the following report:

"(*a*) On agar at 37° C.: quickly growing white culture, resembling in appearance the *Staphylococcus cereus-albus.* Microscopically: diplo- or tetra-cocci or square clusters, but no typical staphylococci.

"(*b*) On gelatine at 20°: hardly any growth whatever after twelve days.

"(*c*) Both at 37° C.: good growth, causing a turbidity. Microscopically: chiefly diplo- and tetra-cocci; no staphylococci.

"To-day I have inoculated a mouse under the skin, and shall know the result in a day or so.

"To return to your coccus: it is *not* the *Staphylococcus pyog.-albus,* because it does not liquefy gelatine; it is not the *cereus-albus,* because it refuses to grow properly on gelatine; it is not the *Staphylococcus albus-epidermidis* for the same reason; nor is it the *tetragoneus.* It is a kind I have not met with."

That the organisms injected into rabbits did not produce any notable toxic effects is not surprising, as Mr. Kanthack pointed out in the discussion that took place on this paper that such virulent organisms as those of ulcerative endocarditis produce no effects unless there is damage to the endothelium lining the circulatory apparatus.

According to Ross and Bury on 'Peripheral Neuritis,' p. 316, in beri-beri, "characteristic organisms in the form of little rods and *diplococci* are almost invariably found in the blood, and cultures from the blood, when injected into rabbits, have sometimes produced a multiple neuritis. But the organisms have not been found in special association with the diseased nerves, and it is probable that a chemical poison is produced during the growth of the organisms which attacks the peripheral nerves, and is peculiar in exhibiting a special affinity for the cardiac branches of the vagus."

The same authors regard Landry's paralysis as an acute form of peripheral neuritis.

Eichorst's *Handbuch der speciellen Pathologie und Therapie,* vol. iii, p. 123, states that "in many cases the cause of the neuritis is not demonstrable, but the high fever, the sudden onset, and the progress of the clinical symptoms point to an *infective* action upon the peripheral nerves producing *primary infective neuritis.*" In all probability primary and secondary infective neuritis are due to the action of the chemical products of micro-organisms. That septicæmia will produce neuritis has been proved beyond doubt by numerous recorded cases, one of which was that published by Dr. Hale White in the last volume of the *Clinical Society's Transactions.* The only possible septic source in my case is the kidneys, and I find Dr. Dana exhibited a case before the New York Neurological Society,* June 4, 1889, which clinically corresponds in many respects. It was termed a case of septic peripheral neuritis due to pyelo-nephritis.

John L., æt. 21, was admitted to hospital with symptoms

* *Medical News,* 1889.

of acute articular rheumatism affecting all extremities. There was no history of alcoholism or venereal disease. There were pus and albumen in the urine for five weeks, followed by paralysis but abatement of the joint symptoms; anæsthesia and burning pain, with atrophy and degeneration of the muscles supplied by the median, ulnar, and anterior tibial nerves.

I am doubtful whether the albumen, blood, pus-cells, and micro-organisms found in the urine in my case was any more than the *outcome* of the infective toxæmia produced by micro-organisms. Strümpell, Eichorst, and others mention the fact that albuminuria and hæmorrhages may occur, and as I am of opinion that there was no definite proof of pyelo-nephritis in my case I shall therefore consider it to be one of *primary infective multiple neuritis.*

APPENDIX I.

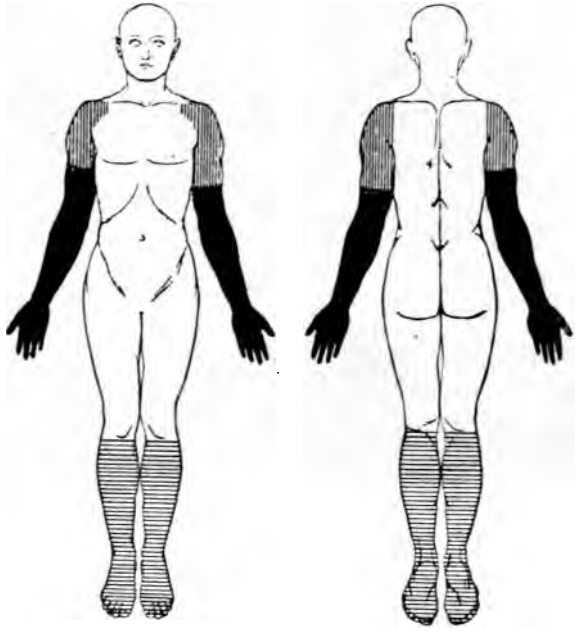
Report of Dr. Arkle on a micro-organism from a case of multiple neuritis.

Agar-agar cultivations from the blood of a patient suffering from multiple neuritis, taken under strict precautions (Mott), showed numerous small round white colonies, growing better on the surface than deep down. The colonies consisted of a micrococcus which appeared to have a tendency to lie in twos and fours. The colonies project above the surface of the agar as minute white beads; they do not tend very much to run together. Plate cultivations were made from this growth, and pure cultivations started.

In each case the growth was rapid and luxuriant, so that in twenty-four to forty-eight hours a large white streak appeared—produced by different colonies running together—and showing small fissures along its slightly raised margin. The growth in gelatine was rather slow and chiefly near the surface. It appeared as a series of short knobbed branches spreading from the needle track. There was no liquefaction in ten days.

Microscopically all the cultivations consisted of micrococci, showing a tendency to unite as diplococci and tetrads, and in all the colonies small round spaces, looking like capsules or "comb-like spaces" which the cocci had left, could be seen.

FIG. 18.



Partial loss of sensation.

Complete loss of all sensations, tactile, painful, and thermal.

Inability to distinguish two points of the æstheriometer, but tactile and thermal sensations unimpaired. Areas of hyperæsthesia.

APPENDIX II.

Electrical examination, May 18, 1893.

Left arm.—*All the muscles* of shoulder, arm, and forearm *respond to faradic* current, except the *extensor com. digitorum,* but the current required is stronger than that required for the legs. There is some diminution of sensation to light tactile sensation on left hand. Sensation to heat and cold is unimpaired. *Galvanic reactions* normal, except that KCC = ACC in ext. com. dig., and strong current is required.

Right arm.—The deltoid responds to a strong current, but *all the other muscles* of arm and forearm have *totally and completely lost all faradic irritability,* giving no response to full strength of the faradic battery. *KCC = ACC* in all the flexors and extensors of the forearm, except the ext. com. dig., in which KCC>ACC. The thumb muscles give *no response* to the full strength of the galvanic battery. N.B.—*This is the same as found on May* 11.

Legs.—All muscles of both legs respond to moderate strength of faradic current. Although knee-jerk is lost on right side, the quadriceps extensor responds readily to faradism. Sensation normal.

Sensation in right arm is markedly impaired, especially on the fingers and extensor surface of forearm; patient cannot even feel a bull-dog clip on his fingers. Perception of heat and cold is also somewhat impaired.

Dr. Mott was present during the above examination, and confirmed all the reactions that were found.

Electrical examination, June 8, 1893.

Faradism.

Right arm.—There is no response in any muscle, either of arm, forearm, or in deltoid, to the strongest current of the faradic battery.

Left arm.—Like the right, except that the triceps responds to a strong current and the supinator longus very slightly.

Right leg.—Muscles all respond to faradism, but the current required to excite a contraction in the extensor

muscles of the foot (*i. e.* tibialis ant., ext. com. dig., and ext. long. poll.) is greater than that for the corresponding muscles of the left leg.

Left leg.—Muscles all respond to moderate faradic current, though somewhat stronger than is usually required.

Galvanism.

Right arm:			
Deltoid	—	...	ACC>KCC.
Biceps	—	...	ACC>KCC.
Triceps	KCC>ACC.		
Supin. long.	KCC>ACC.		
Ext. com. dig.	—	...	KCC=ACC.
Ext. carp. rad.			
Ext. carp. ul.			
Ext. ass., &c.	KCC>ACC.		
Interossei	—	...	KCC=ACC.
Thenar muscles	KCC>ACC.		
Flexors	KCC>ACC.		
Right leg:			
Tibial. ant.	—	...	ACC>KCC.
Ext. com. dig.	—	...	ACC>KCC.
Ext. long. poll.	—	...	ACC=KCC.
Peronei	KCC>ACC.		
Gastrocnemius, &c.	—	...	ACC>KCC.
Left arm:			
Deltoid	—	...	ACC>KCC.
Biceps	—	...	ACC>KCC.
Triceps	KCC>ACC.		
Brach. ant.	KCC>ACC.		
Extensors	KCC>ACC.		
Interossei	KCC>ACC.		
Ext. p. and sec. rad.	—	...	ACC>KCC.
Add. poll.	—	...	ACC>KCC.
Thenar muscles	—	...	KCC=ACC.
Flexors	KCC>ACC.		
Left leg:			
Tibial ant.	—	...	ACC>KCC.
Extensors	—	...	ACC>KCC.
Peronei	—	...	ACC>KCC.
Gastroc., &c.	KCC>ACC.		

The current required to obtain response is much stronger than is usually required, but this is apparently due chiefly to resistance of the skin, which is very hot and dry. Five milliampères is least current required, and in extensors of arms, interossei, &c., 10 milliampères is required to obtain a marked contraction.

Sensation: Arms.—Arms and hands are almost insensitive to the points of the æsthesiometer. Does not feel a small bull-dog clip fixed on either hand, and complete loss of sensibility to heat and cold.

Legs.—Small bull-dog clip seems to cause him more pain than it should on the foot and leg. Tactile sensation is unimpaired in both legs, but there is some inability to distinguish two points. Can distinguish heat and cold on both legs. Sometimes gives unreliable answers. Areas of hyperæsthesia seem scattered about.

June 24, 1893.—Muscles tested again to-day, and reactions are practically unaltered. In right arm, however, thumb muscles give ACC = KCC, and interossei in both arms give ACC = KCC. The current required is much stronger than is normally required to produce a contraction, and in the cases of the extensors and interossei nearly the full strength of the galvanic battery is required (current 12 milliampères). Such a strong current was unnecessary last time, though even then it was stronger than usual.

T. Edward Sandall.

XXII.—*A case of Cerebral Abscess.* By C. Mansell Moullin. *Read March* 9, 1894.

THE patient was a boy, fourteen years of age, who came to the Out-patient Department at the London Hospital early in September, complaining of intense headache. There was a history of his having received a blow over the right mastoid region from the fist of a boy about his own size some weeks before. The headache was attributed to this, as he had never suffered from one before, but, so far as his own statement was worth anything, the blow did not cause a bruise.

On examination there was a painful swelling over the mastoid, evidently containing a few drops of pus. There was no history or evidence of disease of the ear; there had never been any discharge from it, and the patient was not deaf. The abscess was opened: no bone was felt; boracic fomentations were applied, and the patient was sent home.

A week later he returned with the abscess cavity filled again, and with the same symptoms in an aggravated form, and he was taken in. The note made in the ward was to the effect that the patient was admitted suffering from intense frontal headache and a fluctuating swelling over the right mastoid. The temperature was subnormal, and the heart's action slow and irregular without any evidence of valvular disease. There was no sickness. The pupils were small but equal, and reacted well to light and accommodation. Movement of facial and ocular muscles perfect. No paralysis. No discharge from the ear, and no albumen in urine. The patient was anæsthetised, the abscess reopened, about three drachms of pus evacuated, the periosteum beneath incised, and the bone which was softened scraped freely.

For five days this gave complete relief, and the patient appeared to be rapidly recovering; his appearance was brighter: there was no pain, and his appetite improved. Then on the fifth night he became sick, vomiting several times independently of food; and the pain returned more intense than ever, making him shriek and moan almost continuously.

The following day the symptoms persisted without being

affected in the least by sedatives or purgation; his mental state was becoming torpid, though he could easily be roused; his pulse was irregular. A fresh exploration was performed, and an opening made into the mastoid cells large enough to admit the little finger. No pus was found, and the lining appeared smooth and healthy. The cavity was not washed out as the membrana tympani was intact.

The patient was entirely relieved by this for ten days, and appeared perfectly well with the exception of a little serous discharge from the wound. Then everything came back suddenly worse than ever; partial coma; constant vomiting; intense headache, with the peculiar cry perpetually repeated; the head thrown constantly from side to side, and the pulse very irregular. There was no retraction of the abdomen or opisthotonos, and no tenderness over the mastoid or on tapping the skull. The pupils were equal, dilated, and reacted to light. Owing to the patient's restlessness the left disc could not be seen distinctly: the right fundus was injected, the veins enlarged; the margins of the disc blurred, and the vessels apparently sunken.

The skull was explored the same afternoon, a flap of skin and periosteum being turned down from over the right parieto-temporal region, and a trephine opening made over the lower and back part of the temporo-sphenoidal lobe. The dura appeared perfectly healthy but tense, and there was no pulsation. Exploration with a trocar and cannula revealed nothing. The bone was then removed from over the lateral sinus on to the cerebellum, as recommended by my colleague, Mr. Dean, and the cerebellum explored with the same result. On pushing the trocar once more through the temporo-sphenoidal lobe into the descending cornu of the lateral ventricle, a few drachms of cerebro-spinal fluid escaped, pulsation at once became evident, and the respiration, which had been very much embarrassed, improved. As might be expected the relief proved very transitory, and there was no real improvement. A few hours after the operation the patient became comatose, the breathing grew hurried and laboured, cyanosis set in, and death ensued suddenly without convulsions.

At the post-mortem examination all the viscera were healthy with the exception of a little congestion of the lungs and kidneys. On removing the skull-cap there was no evidence of inflammation, old or recent, in the neighbourhood of the trephine wound. Over the left temporo-sphenoidal lobe

the brain was adherent to the membranes, and on opening it up a smooth, thin-walled, encysted abscess was found in the substance of the lobe. It was evidently of long standing, as it fell away of itself from the brain, leaving a smooth-walled cavity, and it contained about an ounce of greenish pus with no thick or caseous material. In the descending cornu of the right lateral ventricle was a little blood-clot, coming from the puncture; otherwise there was nothing to be noted. There was no sign of middle ear disease on either side. The bone over the right mastoid region was softened, and in the centre of the softened part was a round hole about the size of a sixpence. There was no inflammation of the dura on the inner surface, and no clot in the lateral sinus.

I think there can be no doubt that in this case the abscess had been latent in the brain for some considerable time, probably long before the accident, and that the blow had roused the inflammation around it into activity again. What caused it originally it is impossible to say: it did not appear to be the residue of an old tubercular focus, and there was no evidence of middle-ear disease. Such cases, however, are not uncommon. The interesting feature about this one is that the symptoms appear to have been intensified if not excited by inflammation of the mastoid region on the opposite side of the head, and certainly on two occasions were completely relieved, once for five days, and once for ten by opening the abscess and washing out the mastoid cells. The pain disappeared altogether, the appetite returned, and the boy ceased to cry, and appeared in all respects convalescent, only to relapse again. I am aware that this has been described on several occasions in connection with cerebral abscess and thrombosis of the lateral sinus when the disease was on the same side, but I am not aware of any case in which the side involved was the opposite one. I am afraid it means that the relief obtained in this way cannot be regarded as any evidence of locality. It probably acts in the same fashion as local bloodletting or active counter-irritation by diminishing for a time the increased intra-cranial tension, and it does not throw the least ray of light upon the cause that may have given rise to this, or the side upon which it is situated.

XXIII.—*Three cases of Extra-dural Hæmorrhage.* By WILLIAM HENRY BATTLE. *Read March* 9, 1894.

EXTRA-DURAL hæmorrhage is not met with, even in hospital practice, to such an extent that a consideration of the short clinical history of three cases can prove without interest to this Society. Although each is an example of hæmorrhage between the dura mater and the bone, they present a great contrast in their history, their symptoms, and the source of the hæmorrhage, as well as in other respects, as will be seen as the notes are read. In order to give the account as shortly as possible some of the less important details as regards dressings, &c., are omitted.

The first case, in which there was a compound fracture of the skull, presented no proof of the presence of the large clot between the dura mater and the bone before trephining was resorted to for the treatment of the fracture, yet it will be noted that the depressed area of brain did not expand before the wound was closed on the operating table, showing that the pressure had been considerable. The account is as follows.

A woman æt. 59 was admitted to St. Thomas's Hospital on the 10th of August, 1893, suffering from injuries to the head and leg.

A short time before admission she had accidentally fallen out of a window into the area below. In the fall her head struck against an open door, and the leg was twisted under her body when she reached the ground.

When admitted she was unconscious. In the upper part of the left parietal region there was a compound depressed fracture of the skull about 1½ inches in length, from which there was not much bleeding. There were no signs of paralysis. The left foot had been displaced inwards, the tibia and fibula were not fractured, but the astragalus and the os calcis were completely crushed, the posterior part of the foot feeling like a bag of gravel. There were two small contused and slightly lacerated wounds on the outer side below the malleolus, through which some granular fat projected. Some of the surrounding skin was much thinned. She was suf-

vessel below, and two around branches above, by means of a small curved needle which penetrated the dura mater.

The fracture ran downwards and forwards towards the external angular process, but could not be followed in its whole extent. Chloroform was administered at the commencement of the operation, but its administration was stopped when the pulse became weak, and an injection of seven minims of brandy was given.

The patient recovered from the symptoms of pressure soon after the opening was made in the skull.

After the operation at 6 P.M. the temperature was 97·6°. A drainage-tube was inserted at the operation and removed in twenty-four hours.

On November 9 there was a small hæmorrhage under the conjunctiva of the right eye, and also round the eyelids; little or no pain about the right side of the head. His intelligence was normal, and there were no symptoms of compression. P. 104. Some stitches were removed on the 4th, and the remainder on the 18th of November. He got up on the 20th, but did not leave the hospital until three weeks later.

I have seen the boy frequently since, and he has continued quite well. He was supplied with a plate to cover the area from which bone was removed. This patient was also shown at the last meeting of the Society in good health, bright and intelligent, not wearing the plate any longer, though there was an evident deficiency in the bone.

In the third case the patient had received a compound fissured fracture with slight depression. Unconsciousness developed without previous history of concussion, and passed into coma; from this condition he was not relieved by operation, and died within about ten hours after accident.

The great interest in this case is the fact that bleeding came from veins in the dura mater, and not from either meningeal artery or large sinus.

Early in the afternoon of the 8th of August, 1892, a strongly built labourer was admitted to the Royal Free Hospital, having fallen from a scaffolding a short time before.

He had sustained a compound slightly depressed fracture in the right parietal region, and was somewhat dazed. When put to bed in the ward he appeared conscious, and gave intel- [illegible] answers to questions. Later he seemed very drowsy [illegible]ble to rouse himself to answer, though he appeared to

know when he was spoken to. This gradually lapsed into a condition of complete unconsciousness, accompanied by somewhat stertorous breathing, dilatation of the right pupil, and accompanying insensitiveness of the conjunctivæ to light. The pulse was full and slow, 48; the temperature was 97·6°.

When I saw the patient at about 6.30 he was in a condition of profound coma. The face was purple, respiration extremely noisy, with an occasional deep sigh. He was sweating freely, and had paralysis of the left side, and immediate removal to the operating theatre was effected. The wound was thoroughly cleansed with carbolic acid solution. No anæsthetic was given. The area of depression was limited to a place below and in front of the parietal eminence, the depression was slight. From this a well-marked fissured fracture ran upwards and backwards towards the posterior superior angle of the parietal, and forwards and downwards towards the anterior inferior angle of that bone. A one-inch trephine was applied towards the lower part of the depressed area, and the skull, which was very dense, fenestrated. I selected this point because it appeared probable that the hæmorrhage came from the middle meningeal artery, and it would be easier to work towards the point of laceration should the diagnosis prove correct. When the trephine crown was removed by the elevator a large blood-clot was exposed, and there was an escape of a large quantity of fluid blood. There was such a large amount of clot, that in order to remove it rapidly a teaspoon was employed. The quantity removed was not measured, but was calculated at 4 ounces. During this time free bleeding was going on into the large space between the dura mater and the bone, and out through the opening, and it was evident that a large vessel had been injured. Bone was freely removed towards the main trunk of the middle meningeal artery, but the source of the hæmorrhage was not seen. As the blood appeared to well up from the back of the cavity, bone was removed backwards, but it was a long time before the opening from which the bleeding came was found; this was in a large vein in the dura mater about half an inch from the superior longitudinal sinus. This was secured with silk passed on a curved needle through the dura mater, and tied so as to include the vein. As blood still welled slowly into the posterior part of the cavity bone was further removed, and attempts made to secure a bleeding point apparently in another large vein. Although these efforts were not fully successful, as the ligature did not hold, the compression

of the part by the forceps was sufficient, and bleeding stopped; it was, however, considered advisable to leave a gauze compress over this part. The wound was now cleansed and the scalp brought together, an opening being left for the end of the gauze compress. The depressed brain showed no sign of expansion.

This operation was necessarily a long one, and the loss of blood considerable. The condition of stertor with occasional deep sighing respiration continued during the operation, and the pulse-rate increased to 136. Occasional removals of bone were followed by movement of the right arm, and to a less extent of the left, but there was no evidence of return of consciousness. The pupils became smaller, and reacted to light, and conjunctival reflex was present. A brandy enema was given during the operation, and a saline infusion of three pints afterwards, when the pulse noticeably improved.

He did not recover consciousness, and died at 11.55. The temperature at 10 P.M. was 103·8°.

At the post-mortem examination the opening made by the removal of bone measured 4 inches by 2, and the original fissure could be traced forwards to the foramen spinosum. The right side of the brain was much compressed. The lateral sinus was normal; there were small blood-clots under the dura mater on the surface of the brain.

The hæmorrhage in this case was, as I have said, very free indeed. It was at first almost a continuous flow, very much increased by the deep sighing inspirations which the man took from time to time. On the supposition that it was due to wound of the meningeal artery, pressure over the carotid was made for a time early in the operation, but without any result.

XXIV.—*A case of Excision of part of a dislocated internal Semilunar Fibro-cartilage of the Knee, with an account of the result twenty-one months afterwards.* By C. B. Lockwood. *Read March* 9, 1894.

A FAIR number of cases of dislocated fibro-cartilage of the knee have now been operated upon, but nevertheless there is need of more detailed information as to their results. The immediate results seem to be favorable, although rumours of grave disasters have occasionally been heard. Our knowledge would be greatly increased if we had a report upon all the cases which have been done. This would not be a difficult undertaking, as their number cannot be great. The following case, which is very like one described by Mr. H. Allingham* in a previous volume of the *Clinical Society's Transactions,* is complete in so far that it gives the result of the operation nearly two years after. Mr. Allingham concludes his paper with the statement that "the patient remains quite well, and experiences no discomfort whatever."

The details of my case are as follows. In March, 1892, my friend Mr. Freeman sent a Mr. B., an engineer æt. 23, to see me concerning his left knee. He says that all his joints are too loose, and that in October, 1889, he was running with a football, and whilst stopping to evade a pursuer he gave his knee a sudden and violent twist, the foot being held by long grass. After this he was laid up with an attack of synovitis, and with great pain in the inner side of his left knee. After recovering from this attack of synovitis his joint remained insecure, and liable during any slight exertion to become deranged. For instance, in November, 1889, he slipped off a plank, and his knee, as he says, "went with a jerk and stuck in a bent position, and would not straighten." This accident was followed by the usual attack of synovitis, during which the patient was laid up.

Similar accidents occurred from time to time, and inasmuch as he was quite unable to stir just after the onset there was danger, owing to the nature of his employment, of a most serious

* Vol. xxii, p. 125.

accident occurring. Mr. Freeman exhausted all the ordinary ways of treating these affections, and the patient possessed quite a variety of knee apparatuses. When I saw him on March 16, 1892, there was slight synovitis of the knee, and pressure on the internal semilunar fibro-cartilage caused pain. The fibro-cartilage also seemed more moveable than is usual. No other loose body could be felt, and it was obvious that there was an internal derangement of the joint, probably due to some injury of the internal semilunar fibro-cartilage. After considering all the circumstances, and especially that the condition of the knee rendered his occupation dangerous, I advised him to have his knee-joint explored. He also saw Mr. Pick, who concurred in this opinion, and advised the operation. On March 22 an anæsthetic was given and the knee opened by a vertical incision 2½ inches in length, made along the inner side of the patella and its ligament, and a finger's breadth from them. I have found that if the incision is too near the patella it is afterwards difficult to introduce the sutures. After the synovial membrane had been incised a good deal of fluid escaped.

The internal semilunar fibro-cartilage was found to have been broken away from its attachment in front of the spine of the tibia, and its outer edge had also been torn from the tibia by rupture of the coronary ligament, so that at least its anterior third projected and moved about freely within the joint. This part of the fibro-cartilage looked crumpled up, and there was nothing to prevent it from becoming caught between the femur and tibia. All this detached portion was cut off with scissors, and the remaining part was sewn down to the upper end of the tibia with a strong twisted silk suture. All blood was then washed from the joint with perchloride of mercury lotion 1 in 2000, and the joint was closed with six or seven silkworm-gut sutures placed about a third of an inch apart and pulled rather tight. The wound was dusted with iodoform and dressed with carbolic gauze and alembroth wool, and placed upon a Mackintyre's splint in a slightly bent position. Great care had been taken by means of heat and chemicals to sterilise the instruments, materials, and the skin of both the patient and of the operator and his assistant. However, no one was allowed to put anything into the joint except myself, and I did as little as possible. The subsequent progress of the case was quite uneventful. There was no rise of temperature, and there was only a moderate attack of synovitis which caused some pain, which was relieved by

loosening a bandage. The dressing was removed on the tenth day, when the wound was healed, and the patient got up at the end of a fortnight. There was hardly any heat or swelling of the knee, so nothing was done to restrain its action.

On May 8, less than seven weeks after the operation, he wrote to say that he walked thirteen miles without any pain or ill effects. Thus it is evident that the immediate effects of the operation were quite trivial and of short duration; pain was hardly felt, although no drainage-tube was used. When the patient began to get about I advised him at first to wear one of his knee apparatuses as a precaution. This was the more necessary because it may be remembered that he said that all his joints were loose, and the one operated upon had probably had its ligaments and capsule stretched by frequent attacks of synovitis. He was also advised not to play at tennis or football for a year. This advice, however, he did not adopt, because in November, 1891, he indulged in some violent exercise, and Mr. Freeman wrote to say that he had had an attack of synovitis of the knee with "considerable effusion. He could, however, extend his leg fully. This is the first time anything has happened since the operation." After this warning the patient took greater care, and he writes on December 6, 1893, as follows:—"My knee is for most purposes perfectly strong. Last summer I rode ninety miles upon a bicycle in addition to many other long rides. For walking and swimming the leg is as sound as the other. I have, however, avoided football, cricket, tennis, and games in which a sudden twist round is often necessary, as this motion would at once bring me to grief. Since the operation it has never locked. I now wear no appliances of any kind."

It is quite clear that this is a truthful and unvarnished account of the effect of the operation which was done. In my opinion this cannot be claimed as a perfect cure, because the patient's ambition was to play at football and tennis and so forth, and this he seems afraid to do. However, there is no doubt but that the freedom from locking is to him a great gain, and one which was essential for his safety in his profession.

Further, I do not doubt that in some cases the result will be an absolute cure. The question naturally arises whether this benefit was purchased at the price of too great a risk. My own experience of opening joints has led me to the conclusion that it is a safe proceeding, unattended with anxiety, provided the surgeon secures asepsis. Without asepsis I consider the operation quite unjustifiable. Fortunately the

knee-joint is so situated that dangers of infection from extraneous sources can be reduced to a minimum. Not only can the necessary manipulations be carried out with little fear of infection, but the skin of the region is thin and comparatively hairless, and contains few sebaceous or sweat glands, and therefore is less likely to infect the wound. Synovial membrane, too, seems to unite as well as peritoneum, and thus the joint is soon occluded.

XXV.—*A case of Perforation of the Bowel in typhoid fever treated by washing out the peritoneal cavity and excising the perforation.* By W. Cayley, M.D., and J. Bland Sutton. *Read March* 9, 1894.

HENRY M—, æt. 25, engaged in business in the City, was taken ill in the first week of October with symptoms of a feverish cold. He had shiverings, headache, cough with a little expectoration, and pains in the muscles of his neck and shoulders. He continued his avocation till October 10, when he remained in bed and did not again get up. During the next few days his temperature varied from 101·5° to 102·5°. He continued to cough a little, but the headache and muscular pains abated. He had restless nights. His bowels were costive. He was put on a milk diet, and was given at first some salicylate of soda, afterwards small doses of quinine, which caused slight cinchonism. On October 13 a saline purge was administered, which brought away two large offensive motions.

I was asked to see him on October 14. It was now pretty evident that he was suffering from typhoid fever, but of a mild type. He was cheerful and free from any distressing symptoms. Pulse 72, temp. 101·4°, resp. 24. There was no abdominal distension or pain; his tongue was rather red and denuded at the back, moderately coated in front. Splenic dulness was increased. Urine contained a slight trace of albumen, and gave a characteristic reaction with Ehrlich's test. There were no pulmonary signs. The next day a well-marked rose spot appeared on the abdomen, and was followed later by two others.

He was ordered to be kept in the recumbent position, to have a diet of two to three pints of milk and a pint of beef tea daily, with soda water. To this was added a few days later an ounce and a half of whisky. A mixture containing some dilute nitro-hydrochloric acid was prescribed, and, if necessary, a draught of chloral and bromide, which he had already been taking, was to be given at night. He was also ordered to be sponged twice daily with tepid water.

During the next ten days the disease appeared to run a favorable course, the temperature varied from 100·5° to 102°, and only once, on October 20, rose to 102·8°. The bowels were confined, and about every other day a small enema was administered which brought away a pale formed motion. His pulse varied from 72 to 84, and he continued cheerful and free from any serious discomfort, and took his food with relish. On one occasion he was attacked by colicky pains and flatulence; this I attributed to his taking a rather excessive quantity of milk. He was given some essence of peppermint, and the milk was somewhat reduced, and the symptoms passed off.

During the next week, ending November 30, the range of temperature was rather higher, varying from 101·5° to 103°, and on the evening of November 30 it rose to 103·6°. His pulse varied from 84 to 90; the bowels continued in the same condition, generally requiring an enema to produce an evacuation, which was always formed. He had a desire for food, and was able to amuse himself by reading and being read to. He complained chiefly of a feeling of aching and weariness from long confinement to bed. It was noticed that he had got decidedly thinner.

On the evening of November 30 his temperature had risen to 103·6°—the highest point it had attained; his pulse was 84, resp. 24. He said he felt quite comfortable, and he was lying on his side reading the newspaper. He passed a good night, and the next morning, December 1, he seemed as well as usual. About 7.30 A.M. he was suddenly seized with intense abdominal pain, especially in the pelvic region; he vomited and passed a loose motion; his temperature fell to 97°.

I saw him about 9 A.M.; he was then in a state of collapse, his skin cold, pulse very small, and he complained of extreme pain all over the abdomen with great tenderness. There was no distension. I ordered him half a drachm of laudanum, and directed that nothing else should be given him but an occasional teaspoonful of brandy and water.

I saw him again about 11 A.M.; the collapse had passed off. His temperature had risen to 103·8°. The pain was much less severe, but there was slight distension of the belly, and from the diminution in the liver dulness I thought there was gas in the peritoneal cavity.

It appeared to me that unless relief could be given by an operation the case was absolutely hopeless. I accordingly

asked Mr. Bland Sutton to see him, and he concurred with me in the opinion that the only chance left was to open the abdomen, wash out the peritoneal cavity, and deal with the perforation in accordance with what was found.

The patient's friends were willing to consent to anything which would afford a chance of saving him. He was, I may say, living in the house of a near relative, himself a medical practitioner, who was of course fully aware of the grave nature of the accident which had taken place, and concurred with us in our opinion.

The conditions appeared favorable for an operation; though the fever had run rather a protracted course, the type had been mild, and before the perforation the patient's strength had been well maintained. From the entire absence throughout of diarrhœa or other intestinal symptoms we might infer that the ulceration was slight in amount, and probably situated chiefly rather high up in the ileum, which would render it more accessible to operative procedure. I think I have observed that the lower down the ulcers the more severe are the diarrhœa and the intestinal symptoms. They are most severe when the ulceration extends into the large intestine, next when it is situated about the ileo-cæcal valve, least so when, as is sometimes the case, it is mainly in the higher part of the ileum, though no doubt these ulcers are very liable to perforate.

Moreover, as this was about the twenty-fourth day of illness, we might hope that the fever was drawing to its termination. It was accordingly agreed that Mr. Sutton should operate at 1 o'clock, five and a half hours after the perforation had taken place; and he has supplied the notes of the operation and the subsequent surgical history of the case. Mr. Sutton was assisted in the operation by Dr. Berkeley.

Mr. West induced anæsthesia with chloroform, and maintained it with the A. C. E. mixture. An opening 8 cm. long was made in the linea alba between the umbilicus and the symphysis pubis. After disposing of an obtrusive coil of bowel the left hand was introduced into the pelvis; the recto-vesical pouch was found to be overflowing with turbid fluid which had escaped from the bowel; at the same time bubbles of gas rose to the surface and escaped through the abdominal incision. The pelvis was first explored because collapsed small gut tends to fall into this cavity; in this case the surmise was correct, for a piece of soft undistended intestine

was easily felt, and on withdrawing it from the belly we had the gratification of seeing the hole in the bowel within 3 cm. of the spot where the gut had been seized, and in the adjacent mesentery there was an enlarged pink lymph-gland. The outlines of the ulcer were clearly discernible, and Dr. Berkeley gently stretched the bowel between the thumb and forefinger of each hand whilst I excised the ulcer by means of an oval incision, the long axis of which was in the long axis of the intestine. The cut edges of the mucous membrane were then brought together with a continuous silk suture, and the serous surface drawn into apposition by eleven Lembert's sutures. The peritoneal cavity was then freely irrigated with warm water, and the abdominal incision closed in the usual manner and dressed with boric lint, charpie, and cotton wool, maintained in position with a flannel binder. The operation consumed nearly an hour, a great part of the time being occupied in cleaning the peritoneum. Before securing the abdominal sutures the stitched gut was laid immediately under the wound. No other ulcer was visible.

At the end of the operation the patient became much collapsed. The surface was cold and bedewed with a clammy sweat, the pulse extremely feeble, the eyes half closed, with the sclerotics exposed. He was given an enema of hot brandy and water, a subcutaneous syringeful of brandy was injected into each arm, and a few teaspoonfuls of brandy were given by the mouth; hot bottles were applied to his feet, and hot flannel to his chest, and a teaspoonful of brandy diluted with a teaspoonful of hot water ordered to be given every half-hour. He gradually rallied; at 4 P.M. his temperature was 98°; at 6, 100°. He was now quite conscious, but was restless and rather excited; he had a distressing hiccough, and once he retched violently, and brought up about half an ounce of bile and mucus. The retching was attended by a sort of convulsive spasm, and caused great pain in the belly. The brandy by the mouth, too, was ordered to be discontinued, as he had a great dislike to it, and thought it increased his hiccough, and he was given 20 minims of laudanum, and it was directed that he should have an enema of half an ounce of brandy and 4 ounces of peptonised milk every three hours. At 9 P.M. he seemed better.

He sucked a good deal of ice with relief to his hiccough and eructations. He passed a fairly good night, sleeping about four and a half hours; when awake he had a good deal of hiccough and eructation. The enemas were retained.

On the morning of December 2 he again became collapsed, his temperature fell to 97°, his pulse was 120, very small, and there was a cold sweat; his mind was clear, and he said he felt comfortable and was free from pain. A subcutaneous injection of ether was administered, and he was ordered to have two teaspoonsful of peptonised milk by the mouth every two hours. At 2.30 his temperature was 97·6°, at 6.30, 99°. Patient had now rallied from his collapse and seemed better. He expressed himself as feeling quite comfortable, and free from pain and tenderness. He had passed water during the day, and also some flatus by the bowel. At 2 o'clock he had vomited. The eructations and hiccough were diminished. The last enema was not retained, and he was ordered to have 25 minims of laudanum in the one given at 10.30 P.M. His pulse now was 112 and of better quality. Occasionally there was a little rambling delirium. He passed rather a restless night, and was much troubled by eructations, but slept at intervals.

December 3.—At 6 A.M. temp. 99·8°; at 9, 100°; pulse 120. No pain or tenderness; has a craving for food; ordered half a teaspoonful of Brand's essence every two hours with the milk, enemas to be continued.

As it seemed possible that the subnormal temperature and collapse on December 2 might be due to yielding of a stitch the wound was examined, and the dressing had a distinctly fæcal odour, therefore a stitch was removed to allow of the free escape of gas and any bowel-contents that might become extravasated. During the subsequent course of the case there was evidence that gas passed from the intestine through the wound.

Patient passed a fairly good day. One of the enemas was returned with a little light yellow fæcal matter. His temperature at night rose to 102·4°. His pulse varied from 112 to 120. He was again given 25 minims of laudanum in his enema at 10.30 P.M.

December 4.—Patient slept during the night for periods of one to one and a half hours; when awake was much troubled by hiccough and eructations. This morning expresses himself as feeling quite comfortable, but he seems weaker. Pulse 124, small and dicrotic, tongue dry. He appears to have distinctly lost flesh since the operation. The enemas now give him some pain, and are not retained so well. He has a strong craving for food. Ordered 3 ounces of peptonised milk, half a teaspoonful of Brand's essence, and

half an ounce of whisky to be given by the mouth every three hours, and the enemas to be discontinued. In the evening he seemed better; his pulse was 108, of better quality; temp. 101·4°. He enjoyed the food though it caused a good deal of hiccough, but he said he could not take the whisky. This was accordingly ordered to be discontinued, and half an ounce of brandy given in an enema every three hours. During the day he passed two loose motions. His condition was now so satisfactory that we began to entertain hopes he would finally rally. He was given as usual 20 minims of laudanum in the last enema. During the night he passed three loose motions which seemed to exhaust him, and the opium enema was not retained; it was accordingly repeated at 4 A.M.

December 5.—He is certainly weaker this morning, pulse 120, temp. 101·4°. Tongue dry. Says he feels comfortable and is quite free from pain. Was ordered an ounce and a half of port wine every two hours; this he managed to take, though with some little difficulty. During the day he had a little rambling delirium. At 6 P.M. he seemed still weaker; he was ordered to have an egg beaten up with the port wine. He had two loose motions during the day. At 10.30 P.M. his pulse was 134. He had taken the egg twice. Twenty minims of laudanum were administered by the mouth, and ordered to be repeated if any more loose motions were passed. He passed rather a restless night. At 10 A.M. on December 6 his pulse was 136, temp. 98·4°; said he felt comfortable, but often passed into a state of rambling delirium. His temperature rose in the evening to 102·2°. During the day he was twice given a hypodermic injection of ether, and at 6.30 one of strychnine and ether. He gradually sank, and died December 7 about 7 A.M., the sixth day after the operation.

A partial examination of the belly was permitted. The post-mortem condition was satisfactory in so far that there was no evidence of peritonitis. The sutured section of the bowel was adherent to the edges of the incision, and pressure on the distended bowel above the sutured segment caused fluid to gurgle across the strait left after the excision and subsequent closure of the ulcerated section of the intestine. No fluid escaped. The leakage of gas was due to the sloughing of a stitch exactly in the middle of the line of sutures. The perforation was situated in the ileum, one foot from the ileo-cæcal valve.

Although the patient's death was not directly due to the operation, the shock caused by it and the perforation prevented him from rallying from the typhoid state into which he subsequently passed. He was, however, saved from the severe suffering of septic peritonitis, which was completely arrested, and which must have proved fatal in a much shorter time.

In any future case it would probably be more advisable after discovering the perforation to thoroughly irrigate the peritoneum, and then secure the hole in the gut to the incision in the abdominal wall, as in an inguinal colotomy. Should recovery follow the fistula could be subsequently dealt with, or it might close spontaneously. In this way the length of the operation and probably the shock would be much diminished.

XXVI.—*Traumatic Rupture of the Common Bile-duct.* By William Henry Battle. *Read March* 30, 1894.

THIS case illustrates one of those rarer consequences of abdominal injury of which we have few recorded examples. It is of special interest as the patient was under close observation in hospital from within a short time of the accident until his death.

It is not without importance as a clinical observation of the effects of pure aseptic bile on the peritoneum—that is, of bile which has escaped through a clean subcutaneous wound, and not through the opening made by the perforation of an ulcer, when pus and other products also gain access to the peritoneum. The patient was also a healthy boy without complication of visceral disease.

A boy æt. 6 was admitted to the Royal Free Hospital on Tuesday, August 15, 1893, suffering from an injury to the abdomen, the result of having been run over by a hansom cab.

His previous history has no bearing on the injury and its consequences.

When admitted he was a well-developed boy suffering slightly from shock, and complaining of spasms of pain in the chest. There was no sign of bruising or redness of the skin anywhere excepting for slight grazing on the left side of the chest, running downwards to the right. His face was slightly flushed, and he vomited soon after admission, but did not bring up any blood. His temperature was 97·6°. There was no special tenderness in the abdomen.

On the following morning the temperature was 98·4°; he seemed fairly well, but still had "spasms" of pain in the chest, chiefly on the right side.

During the night he had been restless and fretful, and vomited twice. Bowels not open.

On the 17th I saw him for the first time in the afternoon; he was lying on his back, and kept his thighs flexed. There was no distension of the abdomen and no tenderness. It appeared to me probable that he had received a contusion of the liver, there being no evidence of fluid in the peritoneum or other signs of rupture of that organ.

He vomited twice in the afternoon, and it was noticed that the urine was very red in colour, sp. gr. 1020, but contained no sugar, albumen, or blood. Temperature A.M., 99·2°, P.M. 101·2°.

On the 18th he had vomited after everything given by the mouth, and was still restless; the bowels had acted normally. It was also observed that respiration was spasmodic and entirely thoracic; he was also drowsy, vomited three times during the day, and had three actions of the bowels. His temperature was higher, 2 A.M., 101°; 6 P.M., 102·3°; 10 P.M., 99°.

He was noticed to be slightly jaundiced on the 19th, was still very restless, and looked ill. He vomited four times. He complained less of pain. Nutrient enemata were commenced. Temp., 2 A.M., 100·2°; 6.10 A.M. and 2 P.M., 99°; 6 P.M., 100·2°.

There was more vomiting on the 20th "after everything," and only 3 oz. of urine was passed. The house surgeon, Mr. Wood, noticed slight dulness in the right side of the abdomen. Temp., 2 A.M. and 6 A.M., 98·4°; 10 A.M., 97°; 6 P.M. and 10 P.M., 98°.

I saw him again during the afternoon of the 21st, and found his condition very much altered since the 17th. He was looking ill, with sunken eyes and large blue circles round them, was deeply jaundiced, and vomited often, in the copious effortless manner of a patient with peritonitis. His pulse was rapid and weak, and emaciation was marked. He lay on his back with his legs drawn up and rotated outwards, as if from weakness.

The abdomen, however, was not what might have been expected,—the impression given was that of "flaccid distension;" it was larger than normal, moved with respiration, but chiefly in the upper region, was but slightly tender, and had no trace of muscular rigidity. On percussion there was an area of dulness extending from the hepatic region into the right iliac fossa, there appeared to be also dulness on the left side in the flank; on the right side the dulness extended forwards to the right linea semilunaris, and changed but slightly on movement of patient. This dulness was best defined by light percussion. He vomited during the examination in the manner already described, was restless, and gave an occasional deep sighing inspiration. The temperature was 97·2°.

After this examination I expressed an opinion that the fluid in the peritoneal cavity was bile, probably mixed with

some inflammatory exudation; that the supply was through some small opening in the duct apparatus; that the fluid was not due to a rupture of the gall-bladder, or to rupture of the liver substance.

It was probable that the presence of the free bile in the peritoneal cavity was causing the symptoms of peritoneal irritation, and that the best treatment was evacuation of the fluid through an abdominal incision.

I was anxious to do the operation at once, but various circumstances rendered that impossible, and it had to be postponed.

On the 22nd it was stated that he had passed a good night, had not been so restless, and that the vomiting had ceased at 2.30 A.M. The dulness in the right flank was possibly more marked, but he appeared rather better. The temperature was, however, low, the respiration irregular and sighing, and the boy very weak.

In the evening, at 6 o'clock, the patient was no better, and immediate operation was again advised and agreed to. The operation was done with the usual precautions.

The incision was placed towards the anterior part ($\frac{1}{3}$—$\frac{2}{3}$) of the dull area on the right side. The peritoneum bulged into the wound when exposed, and was of a very deep yellowish-red colour. When an incision was made through this a large quantity of pure bile ran out, staining my fingers a deep yellow colour. There was no odour about the fluid, which looked like normal bile; about three ounces was collected. The flow was accelerated by turning the patient on his right side. The intestines were congested, but there was no lymph on them. A finger carefully introduced did not throw any light on the case, and whilst long examination was forbidden by the condition of the patient, it was not thought advisable for fear of breaking down any limiting adhesions.

The cavity was washed out with boracic lotion, a glass drainage-tube inserted, and antiseptic dressings applied.

He took the anæsthetic well, but was restless and noisy after the operation, though without pain, and only vomited once. He died apparently from exhaustion at 1.30 on the following morning. Bile was absent from the motions only on the last two days of the illness.

A post-mortem examination was made on the 25th by Mr. W. H. Evans.

The operation wound was extended at each end, a little

more bile escaped. The whole of the intestines were found to be injected, and to have on them layers of lymph; this was especially marked on the right side. The liver and gall-bladder were intact, but about half an inch beyond the junction of the cystic and hepatic ducts the common bile-duct was found to be torn completely through transversely, but the aperture was difficult to find. No other traces of injury were found.

Remarks.—I have already mentioned the extreme rarity of the class of injury of which this is an example, and it is not surprising that these cases without hepatic laceration should be rare, for the duct is small and deeply placed. The specimen removed from this patient at the post-mortem examination was placed on one side, but has been unfortunately lost, and I am indebted to Mr. Evans for the preparation shown to-night, illustrating the size of the common bile-duct at this age; it may serve to remind us of the small calibre of the duct. It has been suggested that the direction of a force (necessarily violent) capable of rupturing the common bile-duct must be from below upwards, but this is not apparent in the account of cases published. The history of this patient is that of similar ones for the first few days, but the duration of the illness was shorter than most, in consequence of the complete rupture of the duct and the resulting cholæmia. At the time of operation I do not think that a complete rupture could have been diagnosed, for bile was said to have been still present in the motions. Peritoneal inflammation played but a secondary part, and had little to do with death. The account of other cases shows how very innocuous the healthy bile is in the peritoneal cavity; patients who have received a partial rupture of the bile-duct do not die from peritonitis, but from exhaustion, most usually after repeated tappings to draw off the effused bile. The peritonitis is generally of a plastic and limiting kind. I have been unable to find records of many cases of rupture of the bile-duct without pre-existing disease of the parts, unless associated with rupture of the liver; and not one of complete transverse rupture of the common duct. In a case recorded by Le Gros Clark, the man had received a rupture of the hepatic duct with slight laceration of the liver, and died on the eighteenth day. Partial ruptures have been found post mortem in cases under the care of Fizeau and Drysdale, the patients having died on the thirty-third and twenty-second days respectively after injury. There are several cases, however, in which

symptoms of similar character and severity were developed, but in which recovery ensued after repeated tappings. Fizeau, Routier, Fryer, Landner, Hermes, Kermisson, Uhde, and Breddon have recorded them. In other cases recorded by Wainwright and Breddon, where large collections of bile were found in the peritoneal cavity during life, the source was not discovered post mortem. The most interesting case, under the care of Mr. Lane, recently published, was apparently one of rupture of the healthy gall-bladder, and therefore, although the account is much like that of one of the class under consideration, we can but refer to it. It showed the small power for harm possessed by the bile, although coming from the gall-bladder, and not from the duct passages.

XXVII.—*Large Stones in the Common Bile-duct, producing complete obstruction: fæcal-smelling material also present in the duct: operation: recovery.* By W. Arbuthnot Lane, M.S. *Read March* 30, 1894.

E. M., æt. 30, was admitted into Guy's Hospital under my care on December 11, 1893. She was said to have suffered from renal colic, passage of gravel, and hæmaturia at intervals for seven years, but she has been quite free from these attacks for several months.

A year and ten months ago she, for the first time, suffered from an attack of biliary colic, and was jaundiced during the attack. Since that time she has had similar attacks at frequent periods, the duration of the intervals varying, but recently they have been much shorter than before. Jaundice also continued between the attacks, the urine being always deeply tinged with bile, and for many months before her admission her motions had been white and pasty. She lost flesh very rapidly, and became very enfeebled.

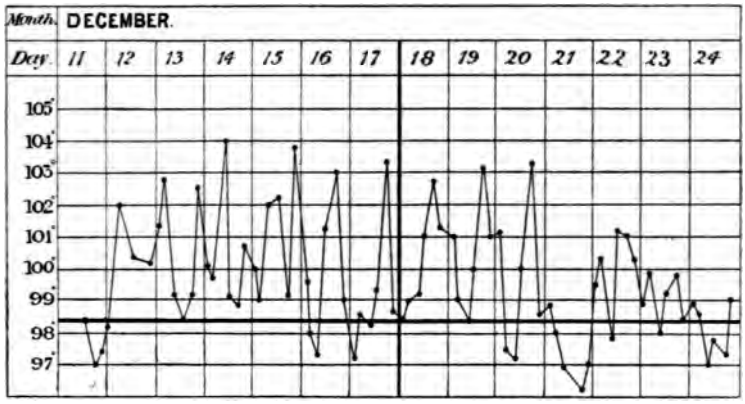
She came under Dr. Chubb's care at Sandgate in October, 1893, and from that time up to her admission the pain, jaundice, and pasty motions, with very considerable irregularity in her temperature, were almost constant, the pain and tenderness in the abdomen, and especially about the liver, being more severe for periods of two, three, or four days. On admission she was in the commencement of one of these exacerbations; the abdomen was much distended and extremely tender, especially between the edge of the liver and umbilicus; she felt sick, but did not vomit; her urine was deeply tinged with bile, and she was generally pretty deeply jaundiced. She was much wasted, and her appearance suggested a rapidly approaching end.

The edge of the liver could be made out when she was placed in the sedentary posture, which relaxed her only sufficiently to make it obvious that the gall-bladder was not much distended, as it could not be felt.

During the six days following her admission the temperature varied rapidly between normal and 104°, but on the 16th, 17th, 18th, 19th, and 20th it reached 103° or more

every night at six in the evening, falling with the same regularity to subnormal at ten in the morning. During the period in which the temperature was regular she felt much better, and looked upon this as the normal condition of the intervals between the attacks.

On December 21, by means of a vertical incision internal to the right linea semilunaris, I found the gall-bladder to be flaccid and elongated, and containing three small stones, each about a third of an inch in diameter. An incision was made into it, when the three stones fell out with a little mucus. The stones and mucus smelt strongly fæcal. A stone was felt in the cystic duct, which could not readily be removed through the opening in the gall-bladder.



On introducing the finger into the foramen of Winslow several large stones were felt in the common bile-duct, two or three of the largest being behind and below the level of the first piece of the duodenum.

The first piece of the duodenum was displaced downwards by dividing the peritoneum along its upper margin, so as to find out if any communication existed between this portion of the bowel and the common duct, but it was seen that they had formed no adhesions to one another.

A small opening was made into the anterior surface of the common duct immediately above the duodenum, when a pretty profuse discharge of perfectly clear mucus, smelling strongly fæcal, escaped. This was carefully removed as it welled out of the aperture, and when it had ceased to dis-

charge, a pair of forceps was introduced through the opening in order to crush or remove a good big stone which lay immediately beneath the aperture. This was followed at once by the discharge of a quantity of a brown liquid, which appeared to possess all the characters of fluid fæces. Another attempt to get at the stones being followed by the same result, I determined not to expose the patient to any risk that could be avoided, so I sewed up the opening into the duct, and packed into the abdomen in its vicinity a quantity of sterilised iodoform gauze, placing a glass tube in the centre of the tampon, in such a position that its end rested upon the sewn-up wound in the duct.

As the stone in the cystic duct obstructed the exit of the excretions of the liver through the gall-bladder, I considered it might serve a useful purpose later, and so made no further attempt to remove it.

The patient was very much relieved by the operation, this being due in all probability to the escape of the dammed-up foul mucus in the bile-ducts. On the 23rd the temperature rose to 101°, but it only on three occasions reached 100° after that date.

On the 24th the tampon and dressings were removed, and were found to be saturated with apparently normal bile, whose odour was strongly fæcal. It was not felt desirable at this early period to throw any strain upon the adhesions by attempting to remove the stones. A glass tube was again introduced, and gauze packed abundantly about it. The urine no longer contained bile in any quantity, and the yellow colour was rapidly disappearing from the skin.

After this dressing bile escaped through the glass tube, and was carried by means of a rubber drainage-tube into a vessel. It still smelt strongly fæcal.

On January 3 she was again placed under an anæsthetic, and several large stones were broken up and removed through the opening in the common duct which had previously been enlarged. The finger could be passed readily into the dilated duct, and the stones felt. The broken-up stones smelt strongly fæcal; much fluid fæcal-looking material came away at the same time. It appeared as if the lowest stone projected into the second part of the duodenum, and so allowed the contents of the biliary ducts to be infected by fæcal material. The brown pasty material that oozed out of the opening in the ducts resembled exactly fluid fæces, and it would seem as if it had entered the duct from the duodenum,

and oozed out when the large stones which completely blocked the lower part of the duct were displaced. At the same time it is not improbable that it consisted of partly disorganised gall-stones.

By the 13th January the motions were less distinctly clay-coloured and the skin had quite lost its yellow colour, but there was a slight trace of bile in the urine.

A quantity of finely broken-up stones was passed with the bile in the several days following the last operation.

On the 15th the motions were brown.

On the 22nd the motions were normal in colour, and but a small quantity of bile-stained fluid was present on the dressings, a fistulous tract being left, which was formed chiefly by the open gall-bladder, through which no bile has passed at any time.

The case is of interest from many points of view. The peculiar irregular temperature which at first suggested pylephlebitis was probably due to fæcal infection of the mucus dammed up in the ducts of the liver. Why it should, after a few days, have lost its irregular character was not quite so obvious. The complete subsidence of the high temperature on the mucus, and subsequently the bile, being allowed to escape from the common duct, showed that the rise in temperature depended on tension of the mucus in the ducts, and not upon its being infected with fæcal material, since it continued to smell just as strongly for many days after the operation.

The use of the gauze tampon has so simplified abdominal surgery as to render such operations on the gall-bladder and ducts of the liver very free from risk. Although I have performed a considerable number of such operations, it has been my good fortune to lose but one. That was a large stone which I had to remove by incision from the common hepatic duct, and that case would, in all probability, not have proved fatal had I been at that time familiar with the use of the gauze tampon. I trusted to the stitching up of the opening in the ducts and to a glass drainage-tube, both most ineffectual means of meeting such a condition. It is well to remember that while normal bile exerts no deleterious influence upon the peritoneum, bile as we meet it in operations on the common bile and common hepatic ducts for calculi, &c., probably always contains micro-organisms, and if it escapes into the general peritoneal cavity produces a fatal peritonitis.

Owing to the variations in the form of the thorax in the two sexes, operations on the common hepatic and common

bile-ducts are much more difficult to perform in the male than in the female. The differences to which I allude I described in a paper published in the *Transactions of the Obstetrical Society*, 1887, entitled "The Factors which determine the Variations in the Form of the Male and Female Pelvis."

XXVIII.—*Two Cases of Rectangular Ankylosis of the Hip-joint, treated by operation.* By CHRISTOPHER HEATH. *Read March* 30, 1894.

THE following examples of ankylosis of the hip in a faulty position were treated by operation; the first by Adams's operation of division of the neck of the femur, the second by Sayre's operation of division between the trochanters. Photographs taken before and after the operation in each case are appended, and the patients were exhibited to the Society. The notes of the cases were contributed by Mr. G. Mower White, late Surgical Registrar to University College Hospital.

CASE 1.—L. M., æt. 14, an orphan, gives the following history:—When six years old she fell and hurt her right hip. She was not able to walk after the accident. She was treated at a hospital, where a long splint was put on the outer side of the limb. After leaving the hospital she went to Margate. She used crutches for four or five years after the accident, and then had a thick-soled boot. There is no family history of consumption.

On admission to University College Hospital, June 1, 1891, the following note was made of her condition:—The right thigh is flexed so as to make with the trunk an angle of 95°. No movement whatever can be obtained at the joint, each motion of the thigh being accompanied by a corresponding movement of the pelvis. The limb is also a little abducted and rotated out. There is apparent shortening of 1 inch, while careful measurement made the real shortening to amount to 1¼ inches. There is some thickening and irregularity about the great trochanter, which projects fully an inch above Nelaton's line. The natural hollow behind the trochanter is filled up. The whole of the limb and the buttock are wasted; the length of the tibiæ is the same on the two sides. The patient walks very lamely, only the forepart of the right foot touches the ground. There is an extreme degree of lordosis in the lumbar spine.

On the tenth day after admission Mr. Heath divided the femur close to its attachment to the pelvis. A skin incision, about three quarters of an inch long, was made a little below

and to the outer side of the anterior superior iliac spine on the right side, and was deepened by means of a steel director until the bone was reached. The bone was partially sawn through with an Adams's saw, and the section finished with a MacEwen's osteotome, leaving only a little to be broken

Fig. 19.

Case 1.—State on admission to hospital.

State on leaving hospital.

through. There was much less neck to the bone than had been anticipated. The wound was closed without drainage, and dressed with dry salicylate wool. The limb could now be brought much straighter, and as soon as the patient got back to bed a Liston's long splint was applied.

On the ninth day after operation the wound had healed. On the same day the Liston's splint was removed, and weight extension substituted.

On the twenty-second day the *left* thigh was flexed to a right angle, and fixed in this position so as to bring the back flat on to the bed. Weight extension was continued on the right side.

On the thirty-seventh day the limb had now come much straighter. A Liston's long splint was therefore substituted for the weight extension.

On the seventy-second day the Liston's long splint was removed, and a single Thomas's hip splint fitted on. The lordosis is much less marked. The patient was allowed out of bed.

On the one hundred and ninth day after operation the following note was made:—The right thigh is flexed, so as to make with the trunk an angle of 150°. No movement can be obtained at the joint. The limb is a little abducted and rotated out. The real shortening amounts to one inch, while there is apparent lengthening equal to rather more than an inch. She walks well, bringing the whole foot flat on to the ground. She can sit upon an ordinary chair comfortably.

On the one hundred and thirteenth day patient was discharged; she was to continue to wear her splint at night.

Case 2.—E. R., æt. 19 years, was admitted to University College Hospital on October 17, 1892. The history of the case was as follows:—When eight years old she fell downstairs and bruised her left hip. After the fall she limped, and walked upon the toes of the left foot. There was occasional pain in the left hip and left knee joints. In two or three years' time the left lower limb "got so short" that the patient had to use a crutch. About three years after the onset of the trouble an abscess formed in the hip and burst, and finally healed up. A little later another opening formed, and had continued to discharge ever since.

On admission, with the exception of the state of the left lower limb the patient was healthy, and fairly well developed. The left lower limb was much wasted, and was less than half the size of the right one. The left limb could not be placed flat upon the bed even when the back was much arched. In order to bring the back on to the mattress the left thigh had to be flexed until it formed a right angle with the trunk. Besides the flexion at the hip-joint the limb was slightly

adducted, but showed no abnormal rotation. Measurement from the anterior superior iliac spine to the lower end of the external femoral condyle showed a length of $11\frac{3}{8}$ inches on the left side, and of 15 inches on the right; and further measurement from the last-mentioned point to the tip of the

FIG. 20.

CASE 2.—State on admission to hospital.

State on leaving hospital.

external malleolus $11\frac{1}{2}$ inches on the left side, and $13\frac{1}{2}$ inches on the right. The top of the great trochanter on the left side projected 2 inches above Nelaton's line. The left femur was firmly ankylosed in its abnormal position, any

movement of the thigh communicating a corresponding movement to the pelvis without any indication of yielding between the two. On the outer aspect of the limb over the upper part of the shaft of the femur there were two sinuses lying at the bottom of a large depressed scar. The skin around the sinuses was undermined, and the tissues on this aspect of the limb were considerably thickened and indurated. No collection of pus could be detected about the joint. The left iliac fossa was normally hollow. There was no enlargement of either liver or spleen. The urine was normal, sp. gr. 1030, and contained no albumen.

On November 9, 1892, with the patient under the influence of ether, Mr. Heath first scraped out the two sinuses with a sharp spoon, and then made an incision, 2—2½ inches long, through half an inch of indurated tissue on to the outer surface of the femur. The periosteum was raised from the bone both in front and behind. In the latter situation the small trochanter could be readily felt. An Adams's saw was applied to the femur just above the level of the small trochanter, and about half the thickness of the shaft sawn through. While this was being carried out free bleeding occurred from the wound, and as much as 12 to 15 oz. of blood was lost. The remainder of the bone was broken through by forcibly extending the thigh, and the limb could now be brought flat on to the table. A long strip of sal-alembroth gauze was packed into the wound, and a large sal-alembroth wool dressing applied over it and firmly bandaged on. No splint was applied, but when back in bed a sand-bag was placed on each side of the knee, and the limb was wrapped in cotton wool. The operation caused considerable shock.

On November 11 the wound was dressed and the plug of gauze removed; no bleeding occurred. A sal-alembroth dressing was re-applied.

On November 12 the temperature reached 100·8°—the highest recorded at this period of the treatment.

On November 28 it was again 100·8°, and on the 30th 101·8°, while on December 5 and December 7 it reached 101°. After this last date it was normal.

The patient remained in the hospital until January 30, 1893, by which time the wound had quite healed and the limb had become fixed in a straight position.

The improvement due to the operation is well shown by the photographs.

The patient was able to walk well with the use of a thick-

soled boot and a stick, and has lately been supplied with a special apparatus made by the O'Connor Patent Extension Company, which enables her to wear an ordinary boot satisfactorily.

These cases are good examples of rectangular ankylosis occurring in young females. The first case, in which no sinuses existed, and in which the head of the femur was not dislocated, appeared to be well suited for Adams's operation of division of the neck of the femur, although the neck was found less developed than was anticipated. The strong contraction of the psoas and iliacus due to long-standing malposition rendered the after-treatment somewhat prolonged, and it was only by steady weight-traction that the shortened condition of the muscles was overcome. In the second case, in which dislocation had taken place, and the head was fixed on the dorsum ilii with open sinuses leading down to the bone, Sayre's operation of sawing through the bone between the trochanters gave excellent results, and the limb, though short, is most useful. Should the question of matrimony arise in the case of these patients, I should have no hesitation in permitting it, since my experience in several cases of old hip disease has been that pregnancy has followed in the ordinary course.

XXIX.—*A case of Aneurysm by Anastomosis.* By G. R. Turner. *Read March* 30, 1894.

MILDRED B., æt. 16, admitted into St. George's Hospital April 13, 1892, with an aneurysm by anastomosis. Her mother stated it was congenital, and that of late it had been growing rapidly downwards on to the cheek. No head symptoms of any kind had ever been felt. Catamenia regular.

Occupying the right temporal region in front of the ear, and extending to the right eyelid and right side of the forehead, was a pulsating nævoid-looking mass, with distinct thrill and bruit. The latter could be traced downwards into the external carotid artery. Pulsation in the tumour could be arrested by pressure on the temporal artery as it passed over the zygoma. The skin over the greater part of the swelling was thin and of a bluish colour, not adherent, however, to the subjacent enlarged pulsating vessels. Mr. Frost kindly examined her eyes with the ophthalmoscope, but beyond slight venous pulsation in the right disc there was nothing abnormal. Although the mass largely occupied the upper eyelid, there did not appear to be any enlargement of the supra-orbital or other arteries emerging from the orbit. The patient sweated freely on the scalp on any slight emotion or exertion.

On April 27 she was given ether. As far as could be made out there was no communication with the orbit. Under the anæsthetic the mass largely increased in size, and, although there was no intra-cranial communication, appeared to have superficially grooved the bones. An incision over the normal course of the temporal artery exposed several dilated thin-coated vessels. These were ligatured with catgut, and divided between the ligatures. This operation stopped the thrill and materially diminished both the pulsation and bruit; indeed, for a day or two after the operation no pulsation could be felt. There was also some diminution in the size of the swelling. The improvement, however, did not remain marked, and on June 30, as there seemed to be some fresh increase in size, various vessels at the circumference of the tumour were ligatured, one at the outer canthus and two in the frontal region. This was again followed by improvement; pulsation became less, and the swelling smaller.

On the 21st of April she was shown at a meeting of this Society.

On July 26 she returned to her home.

When last seen in August, 1893, a year after leaving the hospital, the swelling over the forehead was more prominent, and the thrill and bruit were much more marked. There was an extension of the vascular growth forwards on to the cheek below the lower eyelid, with some discoloration of the integu-

FIG. 21.

ment, imparting a nævoid-looking appearance: there was little if any pulsation in this portion of the swelling. Bruit and thrill could be traced down the vessels of the neck as far as the clavicle. The heart-sounds were normal and the girl's general health excellent. She refused to submit to any further treatment.

This case, according to Gosselin's classification, comes under the head of aneurysm by anastomosis,—that is to say, the capillaries, and to a certain extent the skin, were involved. This distinction from what Gosselin calls arterial varix and

cirsoid arterial tumour is of importance clinically, especially as regards treatment, for removal by excision, though successful in arterial varix and cirsoid arterial tumour, could not, I submit, have been undertaken in this case. Had I obtained the parents' permission I should have ligatured the external carotid artery, and at the same time have again made persistent pressure on the tumour. This latter method of treatment, at one time, in this case seemed to promise success, and I think it possible that, accompanied by ligature of the external carotid, the growth of the tumour might have been checked, even if no permanent cure had resulted. In previously recorded cases of ligature we should, I think, remember that it was practised in pre-antiseptic days, when wounds did not heal so readily as they do now, nor were the materials used for ligature such as to allow union by first intention. Cases of secondary hæmorrhage on separation of a ligature, such as Maisonneuve's, must of necessity be extremely rare now, and surgeons of to-day would not be debarred from ligaturing the external carotid or even the common carotid artery, if the latter measure seemed to be indicated, by statistics of a past age. To me, at any rate, ligature would seem preferable either to coagulating injections, to incision and the promotion of suppuration, or even to electrolysis.

The arteries of the scalp—and especially those of the temporal region—are peculiarly affected by this disease—I suppose because they are superficial, and lack the support accorded to those more deeply situated. There seems, too, to be a curious tendency for the disease to be unilateral, even when the middle line is approached. I saw once, in the country, a man, the whole half of whose scalp was occupied from the frontal to the occipital region by a huge mass of dilated vessels. There was well-marked pulsation, bruit, and thrill; the vessels of the opposite side of the scalp were natural.

I have brought this case before the Society, not only on account of its comparative rarity, but in the hope of hearing the experience of others, and suggestions for treatment in the not improbable event of continued growth of the tumour.

I am indebted to Mr. Dent for the photograph of the case (see Fig. 21).

XXX.—*Resection of part of the left lower lateral wall and base of the Bladder for Recurrent Epithelioma.* By E. Hurry Fenwick. *Read March* 30, 1894.

A. D., æt. 46, was sent to me in April, 1891, by Dr. Morgan, of Pontypridd, on account of an obstinate hæmaturia. His history was as follows:—Up to three months before coming under my care he had enjoyed excellent health. At that time he was engaged in a coal-pit, and one day as he was pushing along a drum of coals he exerted his strength to the utmost. He did not feel anything snap at the time, nor did he experience any sudden desire to urinate. On his return home some hours afterwards he passed dark, coffee-coloured urine; but there was neither pain nor frequency of micturition. The hæmaturia continued, the urine being darker in the morning and whilst he was at work, but the hæmorrhage diminished directly he rested.

A month after the onset he passed round clots the size of the top of the finger. He continued working as usual because he suffered no inconvenience. The hæmaturia continued more or less for six weeks, and then gradually subsided. My notes describe him as being a well-built man, who had not lost flesh. Neither cachexia nor anorexia was present. He passed water in a full, forcible stream. His frequency of urination was three or four times in the day, and three times at night. There was no pain on passing water except a slight scalding at the end of the penis after the act. The urine was healthy except for a microscopical amount of pus and blood.

Electric cystoscopy, May 9, 1891.—"The mucous membrane of the bladder was of a reddish-brown colour, the fasciculi were not prominent, there was no cystitis. To the left of the left ureteral orifice was a hazel-nut sized, white, phosphatic-encrusted epithelioma. It was distinctly sessile,—in fact, it was slightly buried like a retracted nipple in the surrounding swollen mucous membrane. Villous processes were absent. With a microscopical telescope its surface was seen to be granular, and here and there necrotic. The growth was

single and primary. I removed it through a perinæal incision, leaving a thin, hard base. There was nothing to record about the operation except that the prostate was found to be tough and small, and the growth itself was noted as being extremely tough and hard." Mr. Targett kindly examined the growth, and wrote about it as follows:—"This is a malignant epithelial growth, as judged from the character of the cells, the invasion of the vesical wall, and the mode of growth. Such growths differ from squamous-celled epitheliomata to some extent, but they are not glandular spheroidal-celled carcinomata."

The patient returned to work; but a year afterwards (October 3, 1892) he wrote to me that the old symptoms were returning, and that he had begun to pass blood at the end of micturition, but that he could hold his water from five to seven hours, and had only a very slight pain in the region of the bladder. He returned to town in November, 1892, and cystoscopy revealed a sloughy, warty, phosphatic-encrusted epithelioma the size of a two-shilling piece—an enlarged but an exact reproduction of the previous tumour. It was situated on the left side, in the position of the former growth. I performed supra-pubic cystotomy, cut the tumour freely away, and burnt the base with a Pacquelin cautery. The mucous membrane was still free from deep attachments, for the growth could be moved on the submucous tissue beneath. He healed rapidly and returned to work. Seven months after, June, 1893, he again noticed a little blood after micturition, and Dr. Kenneth Mackenzie, of Caerphilly, under whose care the patient had now come, referred him to me. I offered to resect the left lateral wall of the bladder, and he came to town to have the operation performed. I did not examine with the cystoscope this time, for I knew that recurrence had taken place, for the appearance of a little blood at the end of clear micturition, occurring some time after an ablation of growth, nearly always points to recurrence of the same.

On opening the bladder supra-pubically the growth was found to have recurred in the scar of the previous operations. It was now a smooth, sessile, lobulated epithelioma, 1½ inches by 1 inch. The base was indurated, and the infiltration had involved the muscular and submucous layers, for they were glued to the tumour. In order to gain free access to the left lateral wall of the bladder I drew my knife horizontally through the left lower abdominal muscles, the incision commencing at the supra-pubic opening, and ending at a point vertically above the inner third of Poupart's ligament.

Stripping off the peritoneum from the front wall of the left pelvis, I kept it packed upward with sponges. I then resected the growth by cutting away with scissors, it and the entire thickness of that part of the bladder which was subjacent to it. The bladder incision commenced at the supra-pubic median opening, and passed directly to the left until the upper margin of the growth was reached. It then proceeded round the tumour. The left side of the trigone was almost involved, but the ureteral orifice was not encroached upon. The hæmorrhage was not severe, and was easily controlled by a couple of dozen Spencer Wells' forceps. The edges of the bladder wound were now drawn together by catgut sutures which traversed only the muscular layers, a small supra-pubic opening being left for drainage. The open pelvic pre-peritoneal cavity to the left of the bladder was carefully washed out, dried, and a drainage-tube was inserted to guard against leakage. The muscular planes of the abdominal wall were then brought together with buried sutures. The piece I removed seemed equal to the breadth of my three fingers, for these in just covering the growth guarded and guided the extent of the incision, and the gap in the bladder, which its withdrawal occasioned, looked equally large.

Two days after, the patient passed 5 oz. of urine *per urethram*, and this unusual vesical action continued for two or three days, the supra-pubic opening draining simultaneously. On the fourth to the fifth day the bladder ceased acting, and the drainage continued through the wound. The wound healed by first intention. The bladder drain-opening healed quickly, and he returned to work. I am afraid he has a tendency to hernia, or a recurrence, for I have just heard from Dr. Kenneth Mackenzie to the following effect:

"Caerphilly;
January 26, 1894.

"My dear Sir,

"I called upon Hubert Davies to-day, and found him remarkably well—much better than when I saw him last. He weighs 170 lbs., *i.e.* 4 lbs. heavier than he has ever weighed.

"He has no difficulty in micturating, and can keep his water from four to seven hours with little inconvenience.

"There is an ill-defined swelling or tumour in the hypogastric region, a little to the left of the middle line, much more noticeable after he has been walking about for some

time and in the evening. At this time, too, he experiences a sense of weight and dragging there. This feeling I have been able to overcome to a certain extent by advising him to wear a belt over a thick pad."

It seldom happens that a growth is encountered sufficiently far from the base and from the ureteral orifices to warrant resection of the entire thickness of the bladder; but when an epitheliomatous growth is met with on the antero-lateral walls away from the base, I am sure that the wisest plan is to resect the entire thickness of the subjacent wall; I would, however, only advise this proceeding under the following conditions:

1. When the epithelium is primary and single, and of a slow growth and dense.
2. Before cystitis has appeared.
3. When the patient has "vis" to bear so serious an operation.

It might be reasonably asked why I had not resected the bladder wall along with the growth in the first instance, for the cystoscopic diagnosis was correct. I may say that in 1891 I was more reluctant to meddle with vesical carcinoma than I am now; and, moreover, I had not sufficient knowledge of the full capabilities of an aseptic supra-pubic cystotomy. To-day, with an experience of sixty-two supra-pubic operations, I would not hesitate in a similar case to resect at once.

It has lately been advised that the symphysis pubis should be separated, and Albarran* has shown a case in which this was done in order to remove a vesical growth. The division of the left rectus gave ample room for resection in my case, and though symphysio-cystotomy may be of use in cases where tumours are deeply placed upon the anterior wall, its employment can only be very seldom needed; moreover, although sound healing is reported in women, it must be remembered the subjects upon whom this operation is performed are usually young and healthy, but that growths of the bladder occur in older patients, and in those in whom any extra shock is dangerous. The healing power, moreover, of patients who are suffering from carcinoma of the bladder, even in the early stages, seems to me to be often indifferent.

* Albarran, *Scien. Medical*, Jan. 18, 1893.

XXXI.—*A method of treating Simple Oblique Fractures of the Tibia and Fibula more efficient than those in common use.* By W. Arbuthnot Lane, M.S. *Read April* 13, 1894.

My experience of the usual methods of treating simple oblique fractures of the tibia and fibula in certain classes of labouring men, by manipulation of the fragments and the subsequent retention of the limb in some form of splint, is that the results so obtained are but too frequently unsatisfactory in the extreme. This conclusion has not been arrived at from the examination of a small number of cases, but I have collected and observed many at varying intervals of time after the injury, and have inquired fully into their condition, and particularly into their capacity for performing hard work, such as falls to the lot of most labourers.

I do not allude to the presence of any considerable shortening or deformity, for with moderate skill and care such conditions can be generally avoided, though in some cases deformity and shortening are noticeable features. In this paper I will confine myself solely to the consideration of the physical capacity of the man to perform his accustomed heavy work after he has sustained an oblique fracture of both bones of the leg, or in other words of his relative financial value as a machine, both before and after the accident, and I have no hesitation whatever in asserting that, under the methods of treatment at present adopted, not only is the man totally incapacitated from earning a living for an unnecessarily long period, but in a considerable proportion of cases he is unable subsequently to perform such heavy work as he was able to do before the injury, so that he is obliged to follow some less remunerative pursuit, if indeed he has not to depend solely on charity. In fact, his machinery is financially depreciated by the accident, occasionally to the extent of at least 70 to 80 per cent. of its original value.

If what I state is true, the form of treatment of such fractures which is universally adopted in our hospitals is simply disastrous, and can only be perpetuated because we are unaware of the financial loss or even ruin which our very

imperfect surgical methods entail on our unfortunate patients. Though the shortening and deformity are usually trifling, the somewhat complicated displacement of the ends of the fragments on one another is sufficient to completely alter, and often irretrievably damage, the machinery of the lower extremity. The deviation of the axes of the lower fragments of the tibia and fibula from the directions they originally occupied when in continuity with the upper portions of the respective bones causes pressure to be transmitted through the joints of the ankle and foot, of the knee, and to some extent even of the hip, in such an abnormal manner that the individual experiences not only a feeling of insecurity in these joints, which is especially marked in the foot and ankle, but he also suffers from progressively increasing pain and discomfort.

This means that the anatomy of the several joints which are called upon to perform a function other than that they were accustomed to carry out must alter in consequence of, and in proportion to, the degree in which the directions of the lines of pressure which is transmitted through the joints are changed.

Under these altered circumstances the joints are unable to carry out their physiological functions with the same accuracy and perfection that they did previous to the accident, and this inability is a progressive one, and is accompanied by pain and discomfort which increases rapidly, and is most marked in those who sustain such fractures when past middle age.

There are many other troubles which the patient experiences because of his inability to use the muscles and joints of his leg with the same accuracy, ease, and freedom as before, such as œdema, eczema, ulceration, &c.

Even if there is only a small proportion of truth in what I assert—and in my opinion my experience justifies me in making the assertion—it is obvious folly to continue our present methods of treatment, especially as more effectual means are ready to hand.

Why should we hesitate for one moment to bring common-sense mechanical principles to bear in the case of simple fractures of the tibia and fibula, when most surgeons of the present day would not dream of doing otherwise in the case of fracture of the patella with separation of fragments? May I ask this question: are we able by operative measures to treat oblique fractures of the tibia and fibula so that there shall be no alteration from the normal in the lines of pressure

through the several joints? in other words, can we restore the bones to their original form? This can certainly be done, and at a minimum risk to the patient, by freely exposing the fragments at the seat of fracture, by bringing the surfaces into accurate apposition, and retaining them permanently in that position.

Such operative measures offer to the patient the following advantages:

(*a*) They at once relieve him from the pain of any movement of the fragments upon one another.

(*b*) They free him from the tension and discomfort due to the extensive extravasation of blood between and into the tissues.

(*c*) They shorten the duration of the period during which he is incapacitated from work, since union is practically by first intention, and consequently very rapid and perfect.

(*d*) Lastly, and by far the most important, they leave his skeletal mechanics in the condition in which they were before he sustained the injury.

The two questions which now arise are—

"Is much difficulty experienced in bringing the surfaces into accurate apposition?" and "What is the best method of retaining them in that apposition?"

In answer to the first question, it is often very difficult, even when the tibial fracture is freely exposed, to bring the surfaces into apposition by means of manipulation of the limb and of the broken ends, but in every case in which I have used screw pressure I have succeeded in doing so. At the same time it is obvious that even though by these means the surgeon may fail in obtaining perfectly accurate apposition, he will get union with very much less displacement than with the ordinary methods, and consequently a correspondingly better result.

Now as regards the best means of fixation of the fragments: in my earlier cases I used silver wire, but soon gave it up, as it was open to two great objections. Frstly, as it is necessary to fasten its ends, it could only be passed in certain directions with safety, and to secure it satisfactorily one was at times obliged to incise the parts very freely. Secondly, one frequently found that no amount of traction upon the ends of the wires would retain the surfaces in accurate apposition after the grip of the lion forceps was relaxed.

Therefore I decided to treat the bones as one would the broken leg of a table or chair. The surfaces were brought into

accurate apposition, and kept in their normal relationship by lion forceps. Holes were drilled above and below the forceps, and screws were driven in. The screws could be passed in any direction, and they retained the surfaces in an apposition more accurate and more forcible than I fancy can be attained by any other mechanical arrangement.

As far as I know, they cause no subsequent trouble; should they do so they can be removed through an incision equal to the diameter of the head of the screw.

Although I have limited myself to the consideration of the difficulties experienced in establishing exact continuity of the fragments in oblique fractures of the tibia and fibula, yet occasionally in a transverse fracture of the tibia it may be absolutely necessary to expose the broken ends before they can be brought into accurate apposition. This is illustrated by Case 2. As instances of this mode of treatment I am bringing three cases before the Society, as they were all done during the same take-in week, and represent the more simple and effectual means of approximation of the surfaces by screw pressure.

If the conclusions at which I have arrived are correct, it is obvious that any surgeon who resorts to the treatment of oblique fractures of both tibia and fibula, in labourers, by manipulation and splinting, without having previously explained to the patient the consequent disadvantages under which he will very possibly labour, and urged on him the importance of operative interference, is acting unjustly to his patient.

In the case of compound fractures of these bones it is equally advisable to procure perfect union, but for obvious reasons the surgeon is unable to offer the patient the same certainty of a successful result as he can when operating on a recent fracture.

Case 1.—D. M., æt. 34, admitted under my care December 17, 1893. He fell with his leg twisted under him. The tibia was found to be fractured obliquely about two inches above the malleolus, and the fibula was broken about its centre. The lower fragment was displaced behind and outside the upper. Small fragments were felt. No amount of manipulation or traction served to bring the fragments into anything like accurate apposition. His permission for an operation not being obtained, a splint with a foot-piece everted at an angle equal to its fellow was applied.

On January 8, 1894, as no callus could be felt, and as

there was definite deformity, operative measures were urged on him, and he consented.

The fracture in the tibia was exposed by an incision 4½ inches long, when its direction was seen to be very oblique, running downwards, outwards, and backwards. Several small fragments of bone and muscle intervened between the ends of the bone.

Another effort to reduce the fragments by manipulation and traction was made, and the result was observed through the incision, when it was quite obvious that it could not have been effectual in this case in producing anything like apposition. The fragments of bone and the muscle which intervened were removed, and after much difficulty the broken surfaces were brought into accurate apposition by means of lion forceps, and two screws were inserted. The temperature on one occasion after the operation rose to 99·2°.

Case 2.—W. G., æt. 43, was admitted into Guy's Hospital under my care on January 15, 1894, with what appeared to be a transverse fracture of the tibia at the junction of the middle and lower thirds of the bone. The lower fragment was displaced outwards upon the upper, and the fibula was intact. It was found impossible to bring the fractured surfaces into apposition by manipulation and extension. Therefore by means of a long vertical incision the fracture was freely exposed. By means of a periosteal elevator, associated with traction on the foot, the fractured surfaces, which were on the whole transverse in direction but presented very jagged aspects, were brought into perfect apposition, and were so retained by a couple of steel screws. The temperature rose to 100·2° on the day after the operation, but after that it never exceeded 99°.

Case 3.—W. W., æt. 35, was admitted under my care January 15, 1894. He was carrying coals and fell, his leg being twisted under him. Both bones were broken, the tibia in the upper part of its lower third, the lower fragment being displaced outwards, the upper terminating below in a very sharp point, which corresponded to the centre of the inner surface of the tibia. No traction or manipulation served to replace the fragments in continuity. The tibial fragments were exposed on January 18, when the fracture was found to be a typical spiral, the V-shaped extremity of the upper fragment lying below, anterior, and internal to the sharp angle of the lower fragment, from whose apex a fissure

extended downwards and backwards. About an hour was spent working with elevators and lion forceps in attempting to bring the surfaces of the tibia into apposition, and finally, when we were quite despairing of success, it was effected by a sudden movement. The temperature in this case reached 100° or 99·8° on the three days preceding the operation, and for three days afterwards it hovered about the same.

In none of these cases was there ever any sign of pus.

I am very much indebted to Mr. F. J. Steward, who obtained for me the details of forty cases of fracture of both bones of the leg taken indiscriminately from those treated in Guy's Hospital, and from various infirmaries. He started his investigations in an attitude antagonistic to the conclusions at which I had arrived, and this fact therefore renders his observations all the more reliable and valuable. From a consideration of the cases he collected he obtained the following deductions, which fully bear out the statements I have made in the early part of this paper.

Deductions from Cases.

In 40 cases of fractures of the tibia and fibula below the middle of the leg in men following various occupations, 19, or 48 per cent., suffered financially, owing either to inability to follow their former occupation or to earn as much as was earned at their original occupation; 15, or 38 per cent., suffered pain at the seat of injury; and 6, or 15 per cent., had pain in the ankle, and 4 of them had pain in the knee-joint; 12, or 30 per cent., suffered from insecurity in the limb, in nearly every case this insecurity being referred to the ankle-joint. In several of these cases the pain and insecurity in the ankle-joint was not noticed till a period varying from one to ten years had elapsed after the injury was received, showing that slow changes took place in the ankle-joint in consequence of the alteration in the mechanical arrangements of the limb produced by the fracture.

In 23 cases of similar fractures in men following occupations which necessitated heavy work and lifting of weights, 13, or 56 per cent., suffered financially owing to inability to do such heavy work; 12, or 52 per cent., had pain either at the seat of fracture or in the ankle- or knee-joint or in both; and 9, or 39 per cent., suffered from more or less insecurity in the whole limb, this last being in all cases the cause of the inability to follow their former laborious occupations.

No. of case.	Age.	Occupation.	Date of fracture.	Present state of limb.		Condition as regards work.
				Objective condition.	Subjective condition.	
1	41	Brassworker	1891	Very slight deformity	No pain or insecurity	Can work as well as before.
2	47	Carman and porter	1891	Lower fragment displaced slightly forwards; foot inverted	Pain after standing at seat of fracture, and general insecurity of limb	Much depreciated. Cannot do any heavy work.
3	23	Labourer	1891	Marked deformity due to lateral displacement	No pain or insecurity	Can do same work, but gets tired more easily
4	38	Labourer	1890	Very little deformity	Pain at seat of fracture in cold weather	Perfectly satisfactory. Can carry 3 cwt.
5	60	Plasterer	1891	Very good position. Mechanical arthritis of knee-joint	Pain at seat of fracture after standing much. Pain and insecurity of knee	Can only do light work.
6	43	Labourer	1891	Lower fragment slightly displaced forwards and outwards	Pain at times at seat of injury	Can work as well as before.
7	42	Printer	1891	Very good position	No pain or other trouble	Quite satisfactory.
8	50	Horse-dealer	1890	Very little deformity	No pain or insecurity	Can work as well as before.
9	34	Dock labourer	1889	Good position	Pain at fracture. Insecurity and some pain in knee, first noticed 18 months after fracture	Can do no heavy lifting. Is only good for odd jobs.
10	35	Carman	1891	Good position	Pain in ankle at times; the leg, however, feels quite secure	Cannot do lifting owing to sharp pain in ankle.
11	38	Porter	1893	Slight displacement of lower fragment forwards and outwards; stiffness in knee	Pain at seat of injury, in ankle and knee, but no insecurity	Still does heavy work.

No. of case.	Age.	Occupation.	Date of fracture.	Present state of limb.		Condition as regards work.
				Objective condition.	Subjective condition.	
12	40	Carpenter	1891	Very little deformity	No pain	Quite satisfactory.
13	46	Leather porter	1885	Lower fragment displaced outwards	No pain or other trouble	Can work as well as before.
14	38	Scaffolder	1893	Half-inch shortening; lower fragment displaced slightly outwards and backwards	Pain and insecurity in ankle and knee	Obliged to give up occupation. Can only do odd jobs.
15	47	Painter	Sept., 1893	Lower fragment displaced outwards and backwards; leg swollen and œdematous	Great pain and weakness in ankle and knee	Can do no work; is only able to hobble about with a stick.
16	34	Dock labourer	1890	Lower fragment very slightly displaced outwards	No pain, but insecurity in ankle first noticed a year ago	Is now a gardener; unable to do heavy work.
17	42	Dock labourer	1891	Very slight displacement	Pain at fracture, and pain and insecurity in ankle	Cannot do heavy jobs.
18	51	Plumber	1891	Very good position	Slight insecurity in ladder climbing	Can work as before.
19	70	Pauper	—	Little displacement	No trouble	Remained a pauper.
20	69	Signalman	—	Bad deformity	Slight pain after much standing	Does not interfere with occupation.
21	48	Waterside labourer	Nov., 1893	Ununited; lower fragment rotated inwards through 30°	Marked insecurity of limb	Cannot walk.
22	20	Varnish maker	Jan., 1893	Ununited; anæsthesia of dorsum of foot	Marked insecurity of limb	Cannot lift 7 lbs.
23	26	Porter	1884	Very little displacement	Pain on walking; insecurity in ankle	Can only do odd jobs.
24	89	Decorator	1854	Lower fragment displaced forwards	No pain or insecurity	Is able to work as before and go up ladders.
25	88	Grocer	1854	Good position	Pain in fracture; insecurity in ankle noticed 10 years after fracture	Quite satisfactory.

26	73	Tailor	1872	Lower fragment upwards and outwards	No pain or inconvenience	Can work as before.
27	70	Farrier	1844	No evidence of fracture	No pain	Quite satisfactory.
28	70	Labourer	1868	Great deformity; lower fragment upwards and inwards	No pain	After 4 months was able to work as before.
29	65	Carpenter	1880	Caries of bone at present time	General insecurity of limb	Can only do a very little work.
30	76	Labourer	1844	Lower fragment outwardly displaced	No pain or insecurity	Could work as before after 12 months.
31	61	Bricklayer	1848	Very slight deformity	No pain	Was able to work as before after 18 months.
32	68	Messenger	1892	Lower fragment upwards and outwards	Leg very insecure and painful	Unable to do any work.
33	67	Mill sawyer	1869	Only slight displacement	No pain	Is able to work as before.
34	61	Coach painter	1879	Lower fragment upwards and outwards	Great insecurity of limb	Has done no work since.
35	63	Labourer	1886	No displacement	Pain in fracture	Unable to get about.
36	70	Clerk	1854	Very slight deformity	No trouble	Can work as before.
37	72	Bricklayer	1886	Lower fragment displaced outwards	Often painful; some insecurity	Unable to work as well as before.
38	75	Labourer	1880	Lower fragment upwards and inwards	Painful and lame	Unable to get about well or perform work.
39	76	Messenger	—	Marked deformity	Pain and insecurity in limb	Pauper since accident.
40	67	Compositor	—	Considerable deformity	Great insecurity	Pauper since accident.

XXXII.—*A case of Splenic Abscess: secondary abscesses in the liver: death from pyæmia.* By DAVID W. FINLAY, M.D. *Read April* 13, 1894.

MARY S., æt. 20, a domestic servant, was admitted into the Aberdeen Royal Infirmary under my care on October 7, 1893, with the following history:—Her father and mother were alive and in good health; five brothers and sisters were also alive and well; one sister had died of "dropsy" at the age of ten.

As to personal history, she had had measles and whooping-cough in childhood, and had always been subject to cough. She was delivered of a child in April last. On the occasion of her confinement she remained in bed only three days, after which she returned to her work, and had not thoroughly regained her strength since. Three months before admission she suffered from what was stated to be an attack of pleurisy on the left side, with which she was laid up for about a week. There was no history of dyspeptic troubles.

Her present illness began on September 28 (about ten days before admission) with shivering and sickness accompanied by pain in the left side. Notwithstanding, she remained at her work till October 2, and then took to bed for a couple of days. Shivering and sickness recurred, and continued more or less till admission.

On admission she was described as a fairly well-nourished, dark-haired girl, with flushed face, complaining of pain in the left side, difficulty of breathing, and a short, dry cough. The pulse numbered 112 per minute; temperature 99·5° F.; resp. 40. Movement of the left side of the chest was deficient. There was pain of a stabbing character, intensified on deep breathing, in the lower axillary region, together with considerable tenderness. Resonance on percussion was impaired from the fifth rib downwards in the anterior axillary region and at the extreme posterior base. Breath-sounds were feeble, and slight friction was heard on deep inspiration, voice sound over the dull area being somewhat nasal in character. Expectoration was scanty, and consisted of frothy mucus.

The pulse was of fair volume and regular; precordial

dulness began above at the third costal cartilage, and the maximum impulse of the heart was found in the third interspace, and under the fourth rib, about an inch and a half within the vertical nipple line. The sounds were loud, and perhaps slightly roughened, but otherwise normal.

The tongue was clean but red; the abdomen marked by lineæ atrophicæ, tender on pressure below the costal margin on the left side. Liver dulness extended from the fifth rib to the costal margin in the right nipple line, and the area of splenic dulness was not apparently increased.

The urine was cloudy, acid, of specific gravity of 1030, free from albumen and sugar.

Two days after admission (October 9) it was noted that the pain in the side had been very severe, and the temperature had on one occasion reached 103·6° F., and on another 105° F. On the following day at 1 P.M. it was 105·2°, and at 7 P.M. 104°. Along with these high temperatures there were also profuse sweatings, together with rapid pulse (128) and rapid respiration (40). The area of impaired resonance on the left side had somewhat increased, and the breath-sounds were of bronchial quality as high as the inferior angle of the scapula, but no friction was heard.

Next day (October 11) she was comparatively comfortable, the temperature being down to 100°, the pulse 98, of fair volume and regular, and the respirations 24, pain and cough also being much less.

On October 12 she was seized with a rigor, during which she was somewhat cyanosed and collapsed, and on rallying she perspired very profusely.

There was now marked dulness below the left nipple, extending round into the axilla and to the posterior base of the lung. In front the dulness and lung resonance were sharply demarcated from each other; but posteriorly, above the dull area which extended for about four inches from the extreme base, there was an area of merely impaired resonance, which was found gradually diminishing almost up to the inner end of the spine of the scapula. The breath-sounds were absent over the dull area, and diminished over that of the impaired resonance, where also the voice-sound was ægophonic in character.

The history, pain, cough, and the physical signs generally fitted very well with a diagnosis of pleural effusion, limited, perhaps, in front by adhesions; and the rigors, sweating, and septic type of temperature suggesting that this was probably

purulent, I explored the chest on October 13, introducing the needle of a hypodermic syringe in the eighth interspace below the inferior angle of the left scapula to the depth of about an inch and a half, but withdrew only a few drops of blood.

During the following week there was a good deal of fluctuation in her condition. She felt sometimes better and sometimes worse, temperature, pulse, and respiration all showing considerable variation. There was also a good deal of cough, with abundant frothy and muco-purulent expectoration. The impairment of resonance below the angle of the left scapula became also more marked, and about the upper limit of dulness a few friction-sounds were heard, the breath-sounds being faint over the dull area.

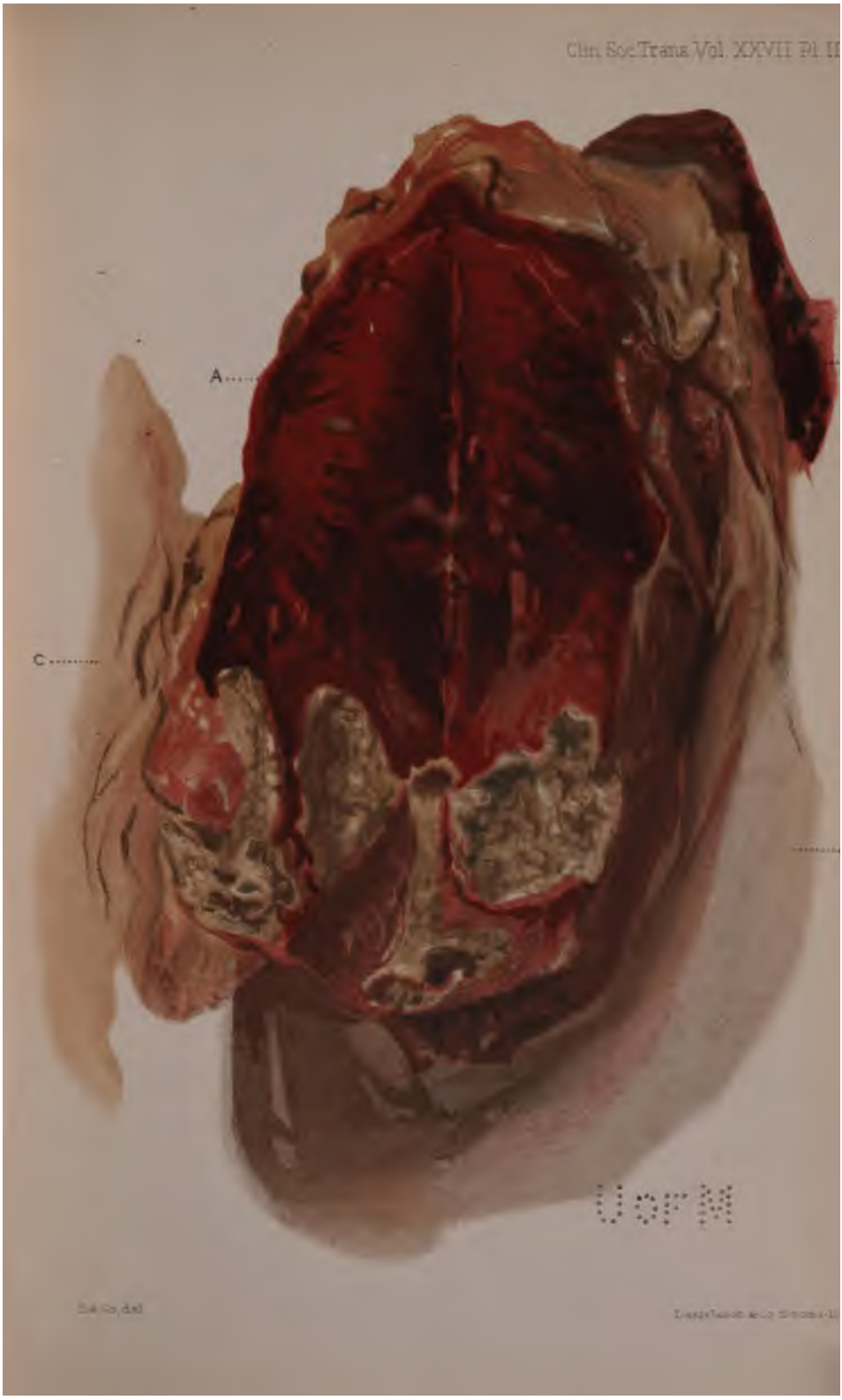
Feeling still convinced of the presence of pus at the base of the left pleura, I decided to make a further exploration under chloroform. This was carried out on October 20, the needle being introduced in two places about the anterior axillary line, where the percussion note was markedly dull; but, as on the former occasion, only two or three drops of blood appeared in the syringe. Five days later there was found an area outside the left nipple extending from third to fifth rib in anterior axillary line, where coarse grating friction was heard; otherwise the physical signs remained practically unchanged. At the same time she was more troubled with cough and difficulty of breathing, the respirations numbering 40; and numerous sonoro-sibilant sounds were audible over the whole chest, except in the dull area, where they were scanty and faintly heard. She was now rapidly losing flesh and becoming anæmic.

Unable still to get rid of the impression that the presence of pus would account better than anything else for the symptoms and physical signs presented by the case, I had the patient again anæsthetised, and the dull area explored by my colleague, Professor Ogston, who was good enough to give me his help in the matter. A longer and larger instrument was used than had been employed by me on the two former occasions, and was passed in in two directions by the same external puncture from the seventh interspace in the anterior axillary line, but still only a small quantity of blood was drawn off by the aspirator. Several ounces of blood were coughed up as she came out of the anæsthetic condition, and for several days after the sputa were stained with blood. She was no worse for the exploration,—indeed, so far as sweating, pyrexia, and pain in the chest were concerned she seemed rather

DESCRIPTION OF PLATE II,

To illustrate Dr. Finlay's Case of Splenic Abscess.

A. Spleen divided longitudinally and laid open, showing abscess cavities at its lower end.
B. Portion of diaphragm.
C. Portion of stomach.
D. Portion of left lung.



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better; but she was attacked by some abdominal pain accompanied by diarrhœa, and on the whole it was obvious that she was losing ground.

About a fortnight after the last exploration she complained of headache, she appeared to be weaker, and her appetite was failing. The pulse was soft and compressible, inclining to dicrotism; sonoro-sibilant sounds had disappeared from the chest, but coarse crepitations were heard close to the spine on the left side all the way down to near the base. The abdomen had become distended and tympanitic. She was now restless and delirious, complaining in her lucid intervals of pain in the head extending down the neck, with a weak, thready, and rapid pulse (128) and rapid respiration (32), and she gradually sank and died on November 21.

The state of matters found at the post-mortem examination was as follows:

The *spleen* was firmly bound to the diaphragm and surrounding parts by old fibrous adhesions. In contact with its lower end and encapsuled by adhesions there was a collection of thick greenish coloured pus about the size of a small orange, the upper limit of which corresponded with the sixth rib. On section, the lower third of the organ was seen to be the seat of several abscesses (see Plate II) communicating with the purulent collection just described. The pus in these presented a curdy appearance; the upper two thirds of the spleen were healthy.

The *peritoneal cavity* contained eleven ounces of clear serous fluid.

The *stomach* appeared healthy except for a few congested patches upon its mucous membrane.

The *liver* was large, and its right lobe was beset by numerous abscesses of recent formation, varying in size from that of a pea to a large walnut.

The *uterus and other pelvic organs* were healthy.

The *heart* weighed 9 ounces, and was also healthy, except that its muscular substance was somewhat wasted, in keeping with the general emaciation.

The *left pleura* contained a couple of ounces of blood-stained serum, and the *left lung* was firmly adherent to the surface of the diaphragm; its substance was œdematous.

The *right pleural cavity and lung* were normal, except that the latter was somewhat congested and œdematous.

The *kidneys* were normal.

The *brain* was not examined.

On account of a suggestion that the abscesses in the spleen might have had a tubercular origin, some of the pus was examined for tubercle bacilli, but none were found.

Remarks.—The case at its commencement so strongly suggested pleural effusion that I was surprised not to obtain positive demonstration by the exploring syringe, and the only alternatives which occurred to me were malignant disease of the lung and subphrenic abscess.

But the age of the patient and the considerable fluctuations of temperature were against the former, and the latter was deliberately put aside, because such cases rather resemble cases of pneumothorax, resulting from adhesions and the perforation of a gastric ulcer. Hence there is a history of dyspeptic derangement, and often of hæmatemesis, with tympanitic resonance over the lower part of the left chest.

The most difficult point in connection with the physical signs to reconcile with a diagnosis of pleural effusion was the upward displacement of the heart's maximum impulse. Subphrenic abscess would have accounted for this, but, as already stated, such a diagnosis did not seem to me to be warranted by the history and symptoms; and the negative result of the frequent exploratory punctures left me without a definite diagnosis. All that seemed fairly deducible from the rigors, sweating, and pyæmic type of temperature was that suppuration was going on somewhere; but in view of the fact that several attempts had been made to find the pus, and had failed, I did not feel justified in recommending any more severe operation for the same purpose.

The order of events, so far as they can be traced, seems to have been, first, the abscess in the spleen, however arising, making its way to the surface and setting up adhesions before rupture; then, on rupture taking place into the adhesions, the formation of the considerable abscess outside the organ; and lastly, the absorption of septic matter from this causing the occurrence of the multiple abscesses in the liver. The severe headache and delirium which marked the last few days of life also suggest the possibility of cerebral abscesses or meningitis, but in absence of the ultimate test this can be only matter for speculation.

As to the cause of the abscess in the present case, this is altogether obscure. We may probably exclude embolism, as the heart was reported to be sound; and there was no inflammatory condition of neighbouring parts (such as might follow the perforation of a gastric ulcer) from which an extension

could have taken place. Possibly an injury, such as from a fall or blow on the side (the patient was a farm servant, and probably exposed to rather rough surroundings), may have started the inflammatory process, although there was nothing in the history given to suggest this. Alternatively, and this is perhaps the most probable view to take, the former pregnancy may have had some causal influence; but here, again, the connection cannot be made out, the uterus and its appendages being found healthy. It may be added that there had been nothing in the history or symptoms suggesting that the abscess could be traceable to any intestinal lesion.

In one of the larger Systems of Practical Medicine,* published a few years ago, it is stated "that simple idiopathic splenitis is very rare, and although formerly its symptoms were described with great detail, most recent writers are content to acknowledge an almost complete ignorance of them. Indeed, splenic abscess is often detected after death when it had not even been suspected during life." And Fagge states that "diseases of the spleen are remarkable in being all secondary to or forming parts of other morbid processes. It is very rarely the seat of acute suppuration. Rare instances, however, occur of fatal illness, which is found at the autopsy to have been due to the formation in the spleen of a single abscess for which no cause can be discovered, and which may reach a very considerable size."†

Another writer states that the "diagnosis presents very often great difficulties, and is frequently quite impossible."

The case just narrated furnishes another illustration of the correctness of these statements.

* Pepper's *System of Practical Medicine*, 1886.
† Second edition, vol. ii, p. 743.

XXXIII.—*Cases of Myocarditis.* By T. J. Maclagan, M.D. *Read April* 13, 1894.

CASE 1.—A gentleman æt. 40 had an ordinary attack of acute rheumatism, with inflamed and swollen joints, acid sweats, and a temperature varying from 101° to 102·4°. He was treated by alkalies and salicylate of soda. Though his pains were less and the temperature fell a little, he did not make satisfactory progress. On the seventh day of his illness (that on which I first saw him) the temperature was 101°; the pulse was 108, feeble and compressible; the skin was moist, the perspiration acid; the tongue moist and furred; there was pain and swelling in both ankles, right knee, and both wrists. Patient was depressed, and sunk in bed; the hands were tremulous; he wandered at night, and occasionally during the day; the bowels were moved by medicine. The area of cardiac dulness was normal; there was no bruit, but the sounds were indistinct and muffled, and the cardiac impulse was diffuse and the apex-beat could not be felt. The diagnosis was myocarditis, inflammation of the muscular substance of the heart. He was ordered to have every two hours 4 oz. of milk or strong beef-tea with half an ounce of brandy; all movement was forbidden; as medicine, fifteen grains of salicin was given every two hours, a quarter of an hour before food. He gradually improved, the muttering delirium ceased, the tongue cleaned; he was less sunk in bed, and got some hours of quiet sleep, and the joint pains disappeared. On the nineteenth day there was heard for the first time a distinct pericardial to-and-fro rub, audible only at the base of the heart. This persisted for two days and then disappeared. Cardiac dulness remained normal, and there was no evidence of fluid effusion into the sac of the pericardium. The patient picked up slowly, but ultimately got well. A year after his illness I examined the heart, and found nothing amiss in it.

Case 2.—A man æt. 27, of irregular habits, had a smart attack of acute rheumatism; knees, ankles, and wrists were all inflamed, acid sweats were marked, and the temperature was as high as 103·8°. He was in very great pain. Treated

by salicylate of soda the joint pains diminished, but the general condition did not improve. On the sixth day of his illness he was sunk in bed and very weak; there was almost constant muttering delirium; he answered when spoken to, but took no notice of what went on around him; the tongue was dry in the centre; the pulse 116, very small and feeble; temperature 102·6°; the wrist and knee joints were slightly swollen, and movement evidently gave pain, though no remark was made; the skin was moist with an acid odour; the area of cardiac dulness was normal; the apex-beat was not perceptible, the first sound was indistinct and unsatisfactory, no bruit was heard. The patient was evidently very gravely ill; the diagnosis was inflammation of the muscular substance of the heart. He took half an ounce of brandy and four ounces of strong beef-tea every two hours, and 15 grains of salicin. On the following day he was worse, there was great depression, muttering delirium was constant; the hands were tremulous, the tongue dry; the temperature was 102·3°, the pulse was very feeble, and the cardiac systole faint and indistinct. He was sunk in bed. Champagne was given in addition to the brandy, and an ether and ammonia mixture. He gradually sank, and died on the tenth day of his illness.

On post-mortem examination the sinuses of the brain were loaded with dark blood, though to no unusual extent; there was nothing abnormal in the brain substance or its membranes; the abdominal organs were healthy; the lungs were somewhat congested at their bases (probably post-mortem loading); there was no fluid effusion into the pericardium, but a layer of recent lymph surrounded the origin of the large vessels within the sac of the pericardium; the heart's substance was dark in colour and loaded with blood; it was soft, and broke down on pressure between the finger and thumb; on microscopic examination the muscular fibres were found to have lost their striated appearance, and were granular in aspect. The valves were healthy.

Case 3.—A man æt. 33, who had had several attacks of acute or subacute rheumatism, had what he regarded as one of his ordinary attacks, which he tried to manage for himself with his usual mixture of salicylate of soda, without going to bed. Getting worse, I was asked to see him. I could not go, and asked Dr. Robb to do so. He reported to me that the man had subacute rheumatism, with a temperature of 101°, and that he had symptoms of delirium tremens as well, though

he did not think he had been taking much stimulant. I knew that he was a man of steady habits, and thought it likely that the tremor and delirium were symptomatic of myocarditis, and arranged to see him the following day. Dr. Robb found him up and sent him to bed, but he did not go at once. While undressing to get into bed he suddenly died. No post-mortem examination could be obtained.

I had seen the man some months before, and examined the heart, which was then quite healthy. There was, therefore, no old-standing heart trouble to account for the death. But there were during life the nervous symptoms which accompany myocarditis, and there can be little doubt that this was the cause of death. Indeed, symptoms resembling those of delirium tremens coming on in the course of acute or subacute rheumatism in a man of steady habits, and in whom there is no great rise of temperature, are almost certainly due to myocarditis.

Inflammation of the substance of the heart is necessarily a grave and serious ailment. Its occurrence independently of endocarditis or pericarditis is recognised in the post-mortem room by the pathologists, but the clinical physician is less familiar with it, though the cases in which it occurs must pass through his hands before reaching those of the pathologist. Indeed, it is generally said that it cannot be diagnosed during life. That is an exaggerated expression of the difficulties of the case. In heart affections we are so apt to trust to physical examination of the organ for our diagnosis, that a heart ailment which cannot thus be diagnosed is apt to escape detection. It has been so with myocarditis. There are no physical signs by which it can be diagnosed. The heart-sounds are generally muffled and indistinct, it is true, but that is not enough for diagnosis. It is by the general symptoms, and especially by those referable to the nervous system, and the circumstances in which they occur, that the ailment is recognised. Delirium occurring in the course of acute rheumatism has always been regarded as an anxious symptom. Todd in his clinical lectures refers to it as "a very formidable complication of rheumatic fever." It is a symptom of serious importance because of the formidable nature of the complications which give rise to it, and of whose occurrence it is an indication. It occurs chiefly in association with hyperpyrexia, and in association with and symptomatic of myocarditis.

When it is due to hyperpyrexia the thermometer gives precision to the diagnosis. Delirium occurring in a case of

acute rheumatism in which the temperature does not rise beyond 105° points to myocarditis. These are the two conditions in connection with which delirium chiefly occurs in acute rheumatism; no wonder that it should be regarded as a formidable symptom, for hyperpyrexia and myocarditis are formidable complications.

Pericarditis sometimes has delirium for a symptom; but, as many cases present no such symptom, it is very possible that in those in which it does occur the delirium may be symptomatic of a coincident myocarditis.

Pneumonia, too, occurring as a complication in acute rheumatism may give rise to delirium, but here the physical examination of the chest reveals the cause. Delirium occurring in a case of acute rheumatism, in which the temperature is not higher than 105°, and in which physical examination fails to detect any special complication, is almost certainly symptomatic of myocarditis.

Scattered through the literature of the profession during the years which have elapsed since Dr. Wilson Fox drew prominent attention to the occurrence of hyperpyrexia in acute rheumatism will be found records of several cases described as "cases of hyperpyrexia without high temperature." This description involves a contradiction of terms. There may possibly be room for some difference of opinion as to the exact point at which pyrexia ceases and hyperpyrexia begins, but no one would fix it at anything under 105°. But in none of these cases was this temperature reached. They are all cases of acute or subacute rheumatism complicated with delirium or typhoid symptoms, and it is probable that the nervous symptoms on which the diagnosis of hyperpyrexia was founded were really due to inflammation of the muscular substance of the heart.

By various writers attention has been called to the occasional occurrence of sudden death in acute rheumatism. Two such cases have come under my own observation. One of them is Case 3 of this paper; in it myocarditis was believed to exist during life. The other is recorded in my book on rheumatism; in it distinct evidence of myocarditis was found after death.

The post-mortem appearances presented in cases of myocarditis, like the symptoms during life, are not very obvious, though quite distinct when carefully looked for. They consist chiefly in loss of consistence in the ventricular walls (for the disease is generally limited to the left ventricle). The

muscular substance is darker in colour than natural, it has lost its naturally firm consistence, and may be so soft as to break down on being pressed between the finger and thumb. On microscopic examination the individual fibres are seen to have lost more or less completely their normal striated appearance, and to present a granular aspect to the eye. The inflammation may even go on to suppuration, and abscesses form in the muscular walls of the heart without the production of any symptoms referable to that organ. A typical instance is the well-known case recorded by Mr. Stanley in vol. vii of the 'Medico-Chirurgical Transactions,' for 1816. The patient was a boy in whom the cardiac symptoms were so latent, and the head symptoms so marked, that there was no suspicion of heart trouble, his symptoms being believed to be due to inflammation of or effusion into the membranes of the brain. After death nothing abnormal was found within the cranium or abdomen. The lungs were healthy. The size of the heart was normal. "On cutting through its parietes the fibres were exceedingly dark-coloured, almost of a black appearance. The fibres were also very soft and loose in their texture, being easily separable, and with facility compressed between the fingers. Upon looking closely to the cut surface numerous small collections of dark-coloured pus were visible in distinct situations among the muscular fasciculi."

One having no knowledge of the subject would naturally think that inflammation of such an important organ as the heart would give rise to very marked symptoms, and be readily diagnosed. But the fact is quite the reverse. The symptoms to which such inflammation gives rise are latent and obscure; there may be no symptom directly referable to the heart, and no special reason for attending to that organ, except the fact that the patient is suffering from acute rheumatism. The symptoms of myocarditis are essentially those of disturbance of the sensorium; and it is on the nervous symptoms and the general condition of the patient, rather than on the physical examination of the heart, that we have to depend for our diagnosis. Nervous symptoms occurring in acute or subacute rheumatism without the high temperature of hyperpyrexia point to inflammation of the muscular substance of the heart.

When myocarditis occurs along with endo- or peri-carditis it is generally supposed to be due to extension of inflammation from the membrane to the underlying muscular structure. It is doubtful if this ever is the case. In endocarditis it

certainly never is; for here the inflammation is limited to a portion of the valvular surface of the endocardial lining, and never affects that portion of the membrane which is in contact with the muscular walls. In pericarditis it is possible; but as myocarditis occurs independently, and as pericarditis more often than not occurs without a coincident myocarditis, it is probable that each occurs independently of the other, even when they co-exist.

That the voluntary muscles are directly affected by the rheumatic poison there can be no doubt; it is to the disturbing action of the rheumatic poison on them that is due the excessive formation of lactic acid, which forms an almost essential feature of acute rheumatism. The muscles chiefly affected are those connected with the large joints, but those of the heart may also suffer, and we may thus have developed a myocarditis due to the direct action of the rheumatic poison on the muscular substance of the heart.

The particular structure in the heart which most often (I had almost said which always) suffers in acute rheumatism is the fibrous structure of the rings and valves.

In all cases of endocarditis the mischief begins there—the endocardial lining membrane suffering only where it is reflected over the valves, and only at that point at which it is elevated and made to rub by the swollen condition of the underlying inflamed fibrous textures.

Pericarditis generally begins at the base of the heart, where the membrane is in contact with the fibrous rings; it never occurs at any other part without being found there, and it is often found to be entirely limited to that part.

It is very probable that from these fibrous rings inflammation may extend to the muscles which are attached to them, and that myocarditis may sometimes be due to inflammation so spreading.

The treatment of myocarditis consists essentially in keeping the heart agoing till the inflammation is over, and the weakened muscular fibres regain their normal condition. Absolute quiet and rest must be insisted on. Good nourishment and a liberal allowance of stimulants are important. Opium may be of service by relieving pain, allaying restlessness, and storing nerve-power. At the same time the rheumatism to which the myocarditis is attributable is not to be lost sight of. The undoubted tendency of the salicylates to disturb the nerve-centres and enfeeble the cardiac action in a certain number of cases is a reason why they should not

be given; but salicin, which has no such untoward effect, should be given in sufficient dose to counteract the rheumatic process—fifteen to twenty grains every two or three hours.

When the acute symptoms are subdued, and the immediate danger of heart failure is over, a distinctly tonic treatment is called for.

The points to which I would call attention are—

1. That myocarditis occurs in acute rheumatism independently of inflammation of the membranes of the heart.

2. That there are no physical signs by which its occurrence can be diagnosed.

3. That the symptoms by which it is to be recognised are those of disturbance of the nervous system occurring in acute or subacute rheumatism without the high temperature of hyperpyrexia, and without other apparent cause.

XXXIV.—*A case of Strangulated Femoral Hernia complicated with Volvulus, with special reference to the continuation of obstruction after herniotomy.* By ROBERT WILLIAM PARKER. *Read April* 13, 1894.

HANNAH H., æt. 44, was admitted into the German Hospital on the afternoon of the 8th December, 1893.

On the 3rd, after an effort involved in an excited conversation, the patient felt pain in the abdomen; it was sudden, and so severe that she had to go to bed. Whilst undressing she noticed a small lump in the right groin, which had not been there before. She had never suffered from a hernia before.

The pain increased, and in the evening she began to vomit. On the following day, as the bowels did not act, an enema was given, which produced only a slight effect. Vomiting continued, and finally became fæcal. The patient lost ground rapidly.

Condition on admission.—The woman appears very ill; her face is sunken, and wears an anxious aspect. The pulse is not very frequent, and fairly strong. The abdomen is distended, and on the right side there is some dulness as if due to accumulated fæces. The patient complains of great pain in the left hypogastric region, both spontaneously and when touched there.

In the right inguinal region just below Poupart's ligament there is a small hard tumour, about as large as a walnut. The tumour is almost painless, and moveable in all directions except forwards and backwards; it extends towards the femoral ring, and then gradually loses itself in the abdomen.

The patient is retching constantly, but she does not vomit; during the past few days she has vomited a great quantity of (latterly feculent) matter.

The bowels have not acted since the enema.

In my absence Dr. zum Busch, one of the resident medical officers, performed the following operation about 7 P.M. on the evening of admission.

An incision was made parallel to Poupart's ligament along the axis of the tumour. The sac was situated almost

directly beneath the skin, nothing but a layer of fascia being found. The sac wall was thickened and infiltrated. On being opened a small quantity of dark red stinking sanguinolent fluid escaped. The hernial protrusion was of the size of a hazel-nut; the intestine was infiltrated and grey-black in colour. The constriction at the neck of the sac was very tight, and some difficulty was experienced in passing even a knife. Several small incisions in the sac neck were made inwards and upwards.

The condition of the intestine precluded its being replaced in the abdomen, but before dealing with it *in situ* it was thought expedient to examine into its condition a little above the stricture. While attempting to draw it down into the opening the gangrenous gut gave way to a considerable extent; some small masses of mucus escaped from one end of the gut, and this end was therefore regarded as the afferent extremity, on which traction was chiefly made in order to get a piece of healthy bowel into the wound for the artificial anus; this was attached to the edges of the incision in the usual way. When the operation was completed no fæces had passed. A finger was passed into the gut, but detected no constriction as far up as could be reached.

December 9.—The patient has passed a fairly good night, and expressed herself as feeling better. This morning the dressing was changed; it was soaked with mucus and blood-stained serum. No fæces had passed, nor flatus. An attempt to pass a soft tube was made, but without success. The finger passed easily without detecting any mechanical obstruction.

I saw the patient about 2.30 P.M.; the dressing was again changed; it was soaked with fæces, but no fæces was passing from the intestine. The knuckle of gut forming the artificial anus was very œdematous and unhealthy-looking. The peristaltic movements of the intestines could be seen through the walls of the abdomen, which was now considerably distended. The woman at this time looked very ill, and complained of pain across the back.

Patient was again anæsthetised, and another effort was made to pass a tube, but without success. The femoral ring was opened still more freely; no fæces appeared. Then it was decided to open the abdomen in the middle line. A little coloured fluid, quite free from odour, was found; the small intestine was very much distended and injected; there were no adhesions between the coils, and no lymph. On introducing

the fingers I found the mesentery of the implicated intestine firmly stretched from the spine across to the femoral ring; but this did not clear up the difficulty, so, in order to explore the femoral opening and its neighbourhood more completely, I allowed the intestines in great part to escape from the abdomen into a warm carbolised towel. On closer examination we now found that a loop of collapsed intestine extending some 6 or 8 inches from near the internal orifice of the femoral ring was twisted on itself, and lay across the band of mesentery just described. On raising this intestine the collapsed gut at once filled, and fæces began to flow from the artificial anus.

The operation field was now covered with iodoform gauze until the abdominal wound could be securely closed. This was accomplished without accident; afterwards a considerable quantity of liquid fæces was evacuated. The patient bore the operation as well as could be expected.

A hypodermic injection of morphia was given shortly, as the woman began to be restless. This restlessness increased, and just before death, which occurred about 3 A.M., she became very violent. A dose of opium at midnight was also without effect.

The woman being a Jewess, a post-mortem examination could not be obtained. But Dr. zum Busch partially opened the wound, and found the intestines less distended and less congested than at the operation; there was no sign of peritonitis as far as he could discover. He was unable to make out at what part the small intestine had been strangulated.

Remarks.—Though volvulus is a very unusual complication of hernia, I bring this case before the Society less on this account than in order to raise the question of continued bowel obstruction after operation, and the treatment appropriate to the condition.

In many cases of hernia reduced by taxis, in which, therefore, the surgeon is ignorant of the exact condition of the gut, the bowels may not act for several hours, or even days; and death occasionally occurs although the former mechanical cause of obstruction has been removed. In this particular case herniotomy had been performed; the gut was found to be gangrenous, and an artificial anus was made above the damaged part; the continued obstruction was, therefore, all the more alarming. The questions I would propound to the Society are the following:—How long after herniotomy should a surgeon wait for the bowels to act? and if the

bowels do not act, what further steps, operative or otherwise, are indicated? In the course of practice, more than once I have had to deal with cases of the kind which have caused me great anxiety.

Some years ago I saw an old lady at Willesden, aged upwards of ninety, who was suffering from symptoms of strangulated hernia. She had an old-standing femoral hernia, which usually was reducible without difficulty; this hernia, however, one day became irreducible, and remained so some hours. Under chloroform it was easily got back, but her symptoms continued, and she died. A partial autopsy was allowed: the femoral hernia proved to have nothing to do with her symptoms; a small obturator hernia was found, a knuckle of gut wall being tightly strangulated. The woman's age and general condition precluded any further interference. Even had the femoral ring been cut down open, nothing would have been discovered.

In Dr. Hale's report on Professor Hagedorn's two hundred herniotomies performed in the Magdeburg Hospital (*Deutsche Zeitschrift für Chirurgie*, vol. xxxii, p. 323, 1891) a case is recorded in which obstruction continued after operation. The patient was a widow, aged forty-three years, suffering from an incarcerated femoral hernia (right) of six hours' duration. The sac was found to contain some cyanosed small intestine, which was reduced into the abdomen, and some omentum, which was removed. As the obstruction continued on the second day after operation the incisions were reopened. The loop of intestine which had been incarcerated was pulled out again, and found to be kinked and bound by recent inflammatory adhesions. As soon as these were removed and the kinking set free the gut filled out, and fæces were shortly afterwards evacuated. The patient recovered.

In my own case the patient was very ill at the time she first came under observation on the sixth day of her trouble. No relief had been afforded by the herniotomy after about sixteen hours; the abdomen, on the contrary, was becoming more distended each hour. The clinical indication, therefore, seemed to me clear, viz. if possible to relieve the bowel obstruction. Under the circumstances I decided to open the abdomen; if I found any mechanical cause, to relieve it—or, failing this, to make an artificial anus in some other part of the intestine that seemed most suitable.

Notwithstanding my want of success I fail to see what

other measure would have afforded a better chance of life. This operation led to the discovery of the volvulus and to its adjustment, immediately after which fæces began to pour out from the femoral opening, but I was too late to save the woman's life.

The cessation of all vomiting and retching after the first operation is a clinical feature of great interest. As pointed out by Mr. Pearce Gould, the vomiting seems due to the nipping of the bowel and mesentery rather than to the obstructed flow of its contents.

XXXV.—*A case of Pelvic Enchondroma.* By Mr. G. R. Turner. *Read April* 13, 1894.

ROBERT F., æt. 50, cabman, was admitted into St. George's Hospital March 8, 1890. About eight years back he noticed a small hard lump in the region of the pubes. It gave him no pain or inconvenience, grew rapidly in the first eighteen months, and more slowly but steadily since. He had lost flesh slightly.

On admission there was a large globular swelling situated on the inner aspect of the left thigh, extending into the perinæum and groin. The thigh with the tumour measured 29½ inches, as compared with 19 inches of the right thigh. In parts the tumour was hard, especially at the base, where it was connected with the rami of the pubes and ischium. The attachment appeared to be quite of a bony nature, the rest of the tumour to be cartilaginous. The hip and thigh moved freely, and appeared to have no connection with the growth. The skin was moveable over the tumour, to the outer side of which lay the femoral vessels. There was no enlargement of glands in the iliac fossa.

The patient was shown at the Clinical Society on March 14, 1890, and the general opinion of the surgeons who saw him was that it would be unadvisable to attempt the removal of the tumour. With this opinion my colleagues at St. George's Hospital agreed. The man was accordingly discharged from the hospital, and told to report himself from time to time.

He was readmitted February 22, 1892. The tumour had been growing gradually but steadily. For three weeks or so before his readmission he had had trouble and pain with his micturition. This was obviously caused by an extension of the growth from the ramus of the pubes inwards, which pressed upon and displaced his urethra. He had some slighter trouble with his defæcation, probably due to pressure by the tumour on the lower part of the rectum.

Owing to these increasing difficulties in micturition and defæcation, it was decided at a consultation to make an attempt at the removal of the tumour. This was accordingly done on the 26th. The tumour, the skin over which was

much stretched and thinned, was found to be an enchondroma growing from the tuberosity, ascending ramus of the ischium, and a portion of the descending ramus of the pubes. It overlapped the bones and extended into the ischio-rectal fossa and perinæum, pushing the urethra over to the right. It being found impossible to get thoroughly at the base of the growth, it was removed in halves. This was effected much more easily than had been anticipated. The mass removed weighed 7 lbs. The muscles on the inner side of the thigh were much stretched and atrophied. There was no hæmorrhage of any importance. The man made a good recovery, but a portion of the thin stretched integument sloughed, leaving the wound to heal in part by granulation.

In August, whilst in the country, he had rather sudden œdema of the left leg and thigh. This subsided in a few days with rest.

He has since reported himself at the hospital from time to time, and when last seen was quite well.

I have thought this case worthy of bringing before the notice of the Society, chiefly on account of the size and connections of the tumour, which seemed to forbid operation. I was most agreeably surprised by the ease and readiness with which the tumour was removed on cutting it in halves, and would suggest that in practically non-vascular growths, such as this one, the surgeon would often save time and trouble by following this method. Had I done so at once, instead of wasting time by dissecting thin stretched integument off the base of the tumour, I do not doubt but that the partial sloughing of the skin would have been avoided, and the patient's convalescence been even more rapid than it was.

XXXVI.—*Case of Intestinal Obstruction due to narrowing of the calibre of the bowel, as the result of recurring appendicitis.* By T. Lauder Brunton, M.D., F.R.S., and W. Watson Cheyne, F.R.S. *Read April* 27, 1894.

THE patient was a gentleman æt. 35, who was first taken ill in May, 1892, with fever, pain in the right iliac fossa, and other symptoms which led to the diagnosis of appendicitis, but which subsided without surgical interference. Since that time he had had a number of similar attacks of varying intensity, five of them severe ones, the last one being in May, 1893, and lasting about fourteen days. He had during this time paid great attention to the regulation of his diet, living chiefly on soups, potted meat, bread and milk, &c. He had been seen at various times by Dr. Lauder Brunton, and also by a well-known surgeon, who had urged removal of the appendix, to which the patient would have submitted but that he did not feel able to spare the necessary time from his work. During last summer the patient remained pretty well, except that he was much troubled with obstinate constipation. On September 11 last he had a severe attack of griping pain, chiefly on the left side, which lasted nearly an hour and then passed off.

These attacks continued to recur with increasing frequency, and the constipation, though not absolute, became more obstinate. He had no fever, and did not remain in bed. On the evening of September 22 he took a dose of castor oil, which did not act; on the contrary, the griping pains became very severe and almost constant, and he was completely obstructed, no flatus being passed. He had no vomiting. During the afternoon of September 23 he passed into a very collapsed state, the pain became intense, and Dr. Brunton was sent for. He advised that a surgeon should be called in without delay, and accordingly Mr. Watson Cheyne was asked to see him, and did so with Dr. Brunton at 10 p.m. His condition was then as follows:—Pulse 80, very small—in fact, hardly perceptible. Temp. 97·4°. Great pain, essentially of a griping character, starting on the left side and running towards the umbilicus; no tenderness anywhere, not much distension,

and what there was, was of a uniform character; no dulness. Tongue moist and not furred. He vomited while we were there, the vomited matter evidently being stomach contents, and Mr. Cheyne understood at the time that this was the first occasion on which he had vomited. While writing out the case, however, the patient tells us that he had vomited once if not twice before we arrived, and he thinks the vomit was stercoraceous, but what he vomited while we were there was not so.

Careful consideration of the history of the case and of the existing condition led us to the conclusion that the bowel at some part had become much narrowed as the result of the previous inflammatory attacks, and that the castor oil had caused increased congestion of the mucous membrane and completed the obstruction. We decided to leave him alone for the night, and ordered opium and atropine subcutaneously and fomentations, in the hope that the obstruction might yield: $\frac{1}{60}$ of a grain of strychnine was also given every four hours.

September 24, 10 A.M.—Patient has passed a very bad night, and has had no sleep. Since 7 A.M. the pain has been constant and severe, and he has vomited stercoraceous material on three occasions. Temp. 97°. Pulse cannot be felt; patient wandering, and evidently moribund. When placed upon the operating table the patient was so far gone that we several times thought him dead, as he became insensible, the lower jaw fell, the half-closed eyes seemed to be glazed, and the surface was cold. It was only with a great deal of trouble that a feeble pulsation could be detected at all at the wrist, and the respirations were so faint that they could sometimes only be detected by minute inspection. As soon as possible afterwards the abdomen was opened in the middle line, and the small intestine was seen to be much congested and full of fluid and gas. On searching the abdomen with the finger, thickening was felt in the right iliac region. A second incision was therefore made inside the anterior superior spine, and the region of the ileo-cæcal valve was at once exposed. The intestine at this part was thickly covered with adhesions, chiefly old and tough, but some apparently more recent. Embedded in this mass lay the appendix, which was coiled upwards and partly around the ileum, and contained a concretion. The appendix had evidently been in this position for a long time. It was freed and removed, and then the mass of adhesions was cut and torn through till it was found that the contents of the small intestine could be readily passed on into the

cæcum. A drainage-tube was passed down to this part and the rest of the wounds stitched up. After the operation, which lasted nearly three quarters of an hour, and during which ether had been administered, the pulse was perceptible; ether and strychnine were administered subcutaneously.

At 4 P.M. we found the patient easier, pain less, no further vomiting, pulse rather better, 90; temp. 97·2°; tongue brown and dry. No gas or fæces had been passed. Six ounces of urine were drawn off (all that had been secreted since the previous afternoon).

At 10 P.M. pulse worse, barely perceptible; no vomiting. Ordered brandy *per rectum*, and repeated injections of strychnine and ether. A quarter-grain of morphine was given subcutaneously.

September 25, 8.30 A.M.—Patient has passed a restless night; no vomiting, pain less; no distension, no gas or fæces passed; pulse as bad as ever, 120; temp. 97°. Ordered nutrient enemata, a little whisky and Valentine's meat juice by the mouth, and to continue the strychnine.

9 P.M.—During the afternoon patient had two copious and extremely offensive motions, after which he was much exhausted. Pulse very much better, 100; temp. 99°.

September 26, 8.30 A.M.—Has passed a much better night; pulse good, 100; temp. 99°. Three fluid motions during the night. Ordered feeding by the mouth, and salol 10 grs. t. d. s.

Further reference to the daily progress of the case is unnecessary, as from this time the improvement, as regards the action of the bowels and the general condition of the patient, was practically uninterrupted. On September 30 the stools were solid for the first time. As regards the progress of the wound, healing occurred satisfactorily except along one stitch track in the central incision, where a small abscess formed, no doubt because the skin was imperfectly disinfected in the haste with which the operation had to be done; this, however, gave no trouble. The drainage-tube leading down to the appendix was left out after ten days, the wounds were healed, the dressings left off on October 13, and the patient was up and dressed on October 20, and went out for a walk three days later.

Since that time the patient has remained well, and he writes a few days ago (beginning of February, 1894) as follows:—"As regards my present condition, I may say that every one who knows me says that I have not looked so well for years. I have been out to several dances and dinners,

and can eat and enjoy anything that is put before me. The bowels are acting regularly." The scars of the incisions are quite satisfactory, except at the place where the drainage-tube was, where there is a slight tendency to bulging, on account of which he is wearing a belt. (April, 1894.—Patient remains well.)

This case seemed to us of sufficient interest to be placed on record for three reasons: firstly, from the point of view of diagnosis; secondly, from the success attending the separation of the adhesions; and thirdly, from the extreme depression of the heart's action, a depression out of proportion to the other symptoms.

As regards the diagnosis, the first question that presented itself was—was this an attack of appendicitis, as the others had evidently been? or was it some sequela of the former attacks? The presence of a fresh attack of appendicitis was negatived chiefly by the history, by the absence of tenderness and fever, and by the character of the pain, which was spasmodic, griping, and referred especially to the left side and the umbilicus. The great difficulty was in excluding strangulation by a band. Our reasons for doing so were the history of increasing difficulty in getting the bowels to act during the summer; the long duration of the present symptoms (11 days); the character of the symptoms during that time, viz. the intermittent attacks of griping pain; the good general condition in the interval between the attacks, the patient being able to go about; the fact that the obstruction was not complete till within twenty-four hours of the time that we saw him together, and the absence of vomiting. (I have already mentioned that the patient has lately corrected this last statement, but Mr. Cheyne did not so understand at the time, and the absence of vomiting was one of his chief reasons for allowing a few hours more to elapse before operating.) These facts all pointed to a narrowing of the calibre of the bowel, and the coincidence of the complete obstruction with the dose of castor oil added to the certainty of the diagnosis, as indicating the existence of a narrow channel which had become closed as the result of inflammatory swelling of the mucous membrane, increased by the action of the oil. It was this diagnosis which seemed to us to warrant a few hours' longer delay, although the patient was in a very critical condition. We could not tell that the adhesions around the gut were so limited in extent and could be so easily disposed of as they proved to be; on the con-

trary, it seemed not improbable, considering the frequent attacks and the length of time that the trouble had been going on, that we should find a more extensive matting together of coils of the intestine, a condition which proved in one case, where Mr. Cheyne attempted to separate the adhesions, to be practically irremediable except by intestinal anastomosis. It therefore seemed to us right to allow a few hours longer to elapse, in the hope that with opium and fomentations this swelling of the mucous membrane might subside and allow passage of the fluid onwards, and a laparotomy under more favorable conditions.

As regards the operation itself, the ease with which the constricting bands were got rid of, and the apparently permanent expansion of the intestine which has resulted, are matters of great interest and importance. As a rule, the matting in cases of narrowing of the bowel after peritonitis is more extensive; it is very difficult to separate the adhesions without damaging the bowel, and fresh adhesions tend to form afterwards. As regards the incisions, the opening was made in the middle line in the first instance, because the patient localised the pain on the left side of the umbilicus, and it was thought well to ascertain the condition of the abdomen with the finger before cutting down on the appendix.

The third point of interest is the extreme depression of the circulation, which lasted so long after the operation, and passed off shortly after the free evacuation of the bowels. The explanation seems clearly to be that the intestinal contents were highly toxic, and that poisons were absorbed into the circulation which produced this marked depression; in fact, the patient was suffering from septic intoxication. Various substances have been obtained from putrefying material which have this depressing effect. It has been maintained by several surgeons that some of the bad symptoms in strangulated hernia, and especially the failure in recovery after operation, are in some cases to be explained by absorption of putrid matter from the intestine. In the case of strangulation, however, there is also a large amount of shock, and it is not easy to say how much of the trouble is due to shock, and how much, if any, to septic intoxication. But in this case there was no strangulation in the proper sense of that term, and no shock from that cause, and it is difficult to find any other satisfactory explanation of the patient's condition than that it was due to sapræmia from absorption of poisons from the intestinal canal, and it seems

to bring strong evidence in favour of the view alluded to with regard to strangulated hernia. Indeed, it became a question, when the depression still continued after the operation, whether one should not make an attempt to remove this poisonous fluid by tapping the ileum through the wound. In conclusion we would refer to the great value of strychnine in these cases, and it is doubtful whether this patient would have recovered but for its administration during the critical period.

XXXVII.—*Partial Obstruction (chronic) from adhesions after Appendicitis.* By C. H. Golding-Bird. *Read April* 27, 1894.

E. B., æt. 33, a blacksmith, was admitted into Guy's Hospital on October 17, 1893. He stated that from the age of fifteen he had suffered from the trouble which he now complained of. During all this period he had had intermittent attacks of pain and swelling in the right inguinal region. At first the attacks occurred once a week, then less frequently, and latterly about once a month: he was not laid up on account of them; an attack which came on late one day would be generally over the following morning, and the last attack but one from the present time is the only one for which he has had to keep his bed. The attacks of inguinal pain were usually accompanied by swelling in the region, and the earlier swellings he describes as having been very painful at their onset, then less painful as they increased, and then more painful again when they attained their full size—that of an orange; after which they would disappear, and, he presumes, "burst internally," as matter would be passed directly afterwards in the motions. Latterly the swelling does not seem to have run the same course and to have ended in the discharge of pus, but to have "come up" and "gone down" within twenty-four hours; whilst he often experiences temporary swelling lasting but a few minutes and then subsiding, accompanied by a feeling of distension.

An examination revealed in an otherwise healthy man a swelling in the right inguinal region, well above and rather to the outside of the middle of Poupart's ligament, firm and almost solid; dull on percussion, and rather painful on manipulation. It gave almost the impression of tumour; so much so that Mr. Durham, under whose care he was at first, gave it as a possible diagnosis that it was a case of growth in connection with the bowel. The patient was kept in bed and laxatives ordered. No change occurred for three weeks, but he then (November 1) said that twice in the previous morning the "lump" had appeared and disappeared; and an examination showed the swelling to be rather larger, but otherwise unaltered. A fortnight later (November 13) he

complained of a "bloated feeling," though the bowels were well open; and the mass was then found larger, more sausage-shaped, resonant in the centre, and very tender to manipulation, but in two days it had subsided to its normal size and character.

All this time there had been trouble in keeping the bowels open, and the patient stated that he always suffered from constipation, and had to be very careful in his diet in consequence.

It being clearly a case depending in part at least upon appendix trouble, it was determined to explore the region. This I did in the usual way on December 13. When exposed there were no parietal adhesions, but there presented at the wound a hard, large, and tangled mass of omentum, partly concealing the caput cæcum coli, to which it was so firmly and extensively attached as to conceal the great part of the gut, which from adhesion-contraction was drawn upwards in the direction of the umbilicus, and twisted round on its own axis so that its lowest part lay anteriorly. There were, besides, numerous bands of adhesions in all directions between the bowel and omentum, so that the caput coli was bent upon itself and contracted, almost assuming an hourglass shape. All that could be discovered of the appendix was a cord-like mass glued firmly on to the surface of the caput, and enclosed in adhesion bands and a fair amount of fat. There was no evidence of there having been any inflammatory attack for a very long period—probably for years; and the operation was brought to a close by division in every direction of the adhesions (as far as possible).

The subsequent convalescence was quite normal, the patient leaving hospital in five weeks (January 10, 1894).

The latest information regarding him (April 28) is that he has not had a return of his symptoms, but that at times he has tenderness about the caput cæcum coli. He is at work as a bricklayer, and believes himself much improved by what was done.

The operation not only gave relief to the symptoms, but explained what was obscure in them before. The reading of the case would now seem to be as follows:—Appendicitis at fifteen years of age, with suppuration from time to time; the gradual formation of extensive adhesions with the omentum, which eventually became closely and largely adherent to the cæcum; and subsequent contraction of the adhesions caused a displacement and distortion of the cæcum, so that the patient

became liable to attacks of temporary stoppage of contents together with inflation of the cæcum,—this forming the addition to the size and character of the hard swelling that was always present, and which was due to an adherent, tangled, and matted mass of omentum.

The condition of the parts was such as, in my opinion at the time of operation, to leave no intermediate step between what I actually did and the ablation of the whole mass, cæcum and all, and the insertion of the ileum directly into the ascending colon. I was, however, under promise to do nothing directly endangering life; but should I have failed to give permanent relief, it seems to me that were the symptoms so to increase as to render something more radical imperative, the step I propose would be the right one to take.

Although cases of obstruction of the intestine due to adhesion-contraction, and ranging from chronic constipation to absolute stoppage, are common, they do not seem as a rule to follow cases of suppurative appendicitis; and considering the comparative frequency of appendix mischief, and the wide-spread inflammation so often caused by it, it is somewhat astonishing that this should be so. I have therefore thought this case as worthy of record.

XXXVIII.—*A case of Acute Intestinal Obstruction and Peritonitis: laparotomy: incision and drainage of small intestine above seat of obstruction: recovery.* By A. Quarry Silcock. *Read April* 27, 1894.

HENRY K., æt. 26, a clerk, formerly a 2nd Life Guardsman, but discharged from the army on account of ill-health, was admitted into St. Mary's Hospital on September 26, 1893, suffering from acute intestinal obstruction and peritonitis. He was a tall, thin, emaciated man. His abdomen was everywhere tympanitic on percussion, and generally tender, but especially so in the left iliac region; the outlines of coils of distended intestine were obvious beneath the abdominal parietes below the umbilicus. The man lay in bed with his knees drawn up, sometimes on his back, sometimes on his left side. His respiration was entirely thoracic. Evidently he was very ill: he spoke in a mere whisper; his pulse was small, compressible, 96 per minute; the temperature 98·8° F. His tongue was coated with a foul brown fur on the dorsum, but red at the edges and tip. He had vomited after admission, the ejecta having a fæcal odour, and he said he had a persistent aching throughout the abdomen.

The following history of his illness was elicited from his friends and himself. It commenced on September 24, about 4 P.M., when he was seized with intermittent purging pains in the upper portion of the abdomen; the pain continued through that and the following day, its severity increasing. On the 25th he saw a doctor at 4 o'clock in the morning; he was repeatedly sick, vomiting liquid material having a disagreeable taste and odour. On the morning of the 26th he was worse, and in the afternoon was taken to St. Mary's Hospital. Since the onset of the attack he had passed no motion or flatus. Enemata had been administered, but were returned at once; he had also taken a small quantity of morphia by the mouth.

Up to the age of twenty-three he had had good health, but in 1891 he was laid up with pleurisy or pleuro-pneumonia, and since that time his health had suffered; he had wasted considerably, and by reason of his condition was discharged from the army.

During the last nine months he had been subject to pains

in the abdomen—colic, as he called it. His life was the sedentary one of a clerk, with long working hours; he was temperate in his habits, and his bowels were always regular.

Shortly after his admission he was seen by my colleague, Dr. Luff, who, deeming surgical interference necessary, sent for me. Chloroform was administered, and afterwards A. C. E. mixture. Careful examination of the abdomen and of the rectum whilst the patient was under the anæsthetic threw no further light upon his malady. I therefore opened his abdomen in the middle line below the umbilicus as expeditiously as possible, a small quantity of turbid serous fluid escaping. The small intestines exposed were much inflamed and distended, contiguous coils being rather firmly glued together by recent partly organised lymph. A good deal of bleeding occurred on separating them with the object of finding the site of the obstruction. Between two adjacent coils amidst the adhesions were two yellowish-white nodules, one larger than a pea, the other much smaller. These were readily turned out, being attached by, and embedded in, inflammatory adhesions. Two or three nodules of a similar kind, though smaller, were observed buried in the mesentery, apparently lying between its layers. The vascularity and firmness of the adhesions precluded any attempt to thoroughly search for a possible source of obstruction, and I made up my mind to relieve the obstruction on the principle advocated by Mr. Greig Smith. At this time, however, the man's condition became so alarming—in fact, he appeared to be dying—that the operation was abandoned. The wound was closed in haste. He had taken but a minimum quantity of the anæsthetic, only a few minutes had been occupied in the procedure detailed, yet he was practically pulseless, and we left the theatre with the conviction that he would die before he could be carried back to bed. Ether and liquor strychniæ were injected, and subsequently a brandy enema was given. Ultimately he recovered sufficiently to be able to converse with those around him. On visiting the hospital at 2 P.M. the following day I was somewhat surprised to find him alive, but he was suffering from continual hiccough, had vomited stercoraceous fluid several times, and was clearly extremely weak. After consultation with Dr. Lees three silkworm-gut sutures uniting the edges of the parietal wound were untied, the middle third of the latter being thus opened, and a coil of distended ileum exposed. A solution of cocain was applied to the surface of the gut, and pieces of cyanide

gauze were packed beneath the edges of the wound in order to prevent extravasation of fæcal matter. An incision about one fifth of an inch in length was then made through the coats of the gut quite painlessly, somewhat obliquely to its long axis. The canula for suction and trocar, furnished with a long india-rubber tube, the further end of which was placed in a basin of carbolic acid solution resting on the floor, was gently thrust through the wound into the lumen of the gut. The canula was held in position for four and a half hours by relays of dressers, a large quantity of fluid fæces being thus drawn off, to the evident relief of the patient; the vomiting and hiccough ceased, the distension of the abdomen very considerably lessened, and the pain was much reduced. Inasmuch as the obstruction was temporarily relieved, and the fæces had practically ceased to flow through the canula, I determined to close the gut-wound. This Mr. Crowle, the surgical registrar, was good enough to do for me by means of three Lembert sutures; the gauze packing was removed, the upper and lower silkworm-gut sutures were retied, the portion of the parietal wound lying over that of the gut being left open; the parts were dusted with iodoform, and dressings applied. On the following morning the sutures in the gut gave way, and a fæcal fistula was established, a large quantity of fluid fæces escaping. From this time the patient progressed slowly but uninterruptedly.

On September 30 a motion was passed by the rectum.

On the 31st the bowels were freely open again.

On October 9 the surgical clerk notes, "There is no discharge of fæcal matter, and very little tenderness in the neighbourhood of the wound; patient feels much better and stronger; temperature and pulse normal. There were two motions *per rectum* yesterday.

On October 16 his weight was 9 st. 5¾ lbs. On October 21 it had increased to 10 st. 2½ lbs.

On November 8 he was discharged from the hospital, the wound having entirely closed a fortnight previously.

At no time was the temperature above 99° except on one occasion, when it reached 99·5°. A tendency to constipation was counteracted by means of confection of senna, his diet being carefully regulated in order that a minimum quantity of fæces should be formed, and after the wound was healed the abdomen was "massed" each day.

The patient is now apparently quite well; his bowels are

regular; he complains of no abdominal discomfort whatever; the scar is perfectly sound. Although still thin his appetite is good, and he declares himself fit for work.

The interest in this case centres chiefly in the fact that the obstruction was relieved and the man's life saved by the very simple procedure I have described. Another case resembling this one, treated on similar lines and with equal success, has lately been recorded by Mr. Bilton Pollard in a recent number of the *Lancet.*

With reference to the origin of the peritonitis, the history and evidence of old pleurisy and lung trouble, and the long-standing abdominal pains, suggest tuberculosis. I regret to say that a microscopical examination of the intraperitoneal nodules which I have referred to throw no additional light upon this question. They consisted of caseating material surrounded by a lowly organised inflammatory growth. No tubercle bacilli could be demonstrated in them.

XXXIX.—*A Case of Syringomyelia.* By C. E. Beevor, M.D., and J. R. Lunn. *Read May* 11, 1894.

In 1883 one of us (J. R. L.) showed before this Society a case of peculiar deformity of hands and shoulders, which is recorded in the Society's *Transactions*, vol. xvi, p. 264, and this was more fully reported on in the following year by a special committee (see vol. xvii, p. 220), who thought that the various lesions were the result of a central nervous affection, and that it was to be regarded as akin to what is known as "Charcot's" disease.

The case remained under observation until the death of the patient in March, 1893. It was carefully watched by us and the colleagues of one of us (J. R. L.) and others, and we think, therefore, that this Society will be interested in hearing the sequel of a case which we have been able to watch for so long a time and under such exceptionally advantageous circumstances. The credit of the diagnosis must be attributed to Professor Hoffman, of Heidelberg, who saw the case in October, 1892, and thought it was one of syringomyelia, and the autopsy proved the accuracy of his diagnosis. It was noted in June, 1885, that all the muscles, both of the arms and forearms, reacted to Faradic and Galvanic currents; apparently there was wasting of muscles on the flexure surfaces of the forearms, which could be accounted for by the disease of the joints. The muscles of the right thumb did not respond to the Faradic current; those of the left, however, did. All the interossei muscles reacted. The muscles of the legs responded normally. No anæsthesia was discovered. Fibrillary twitchings were observed at times.

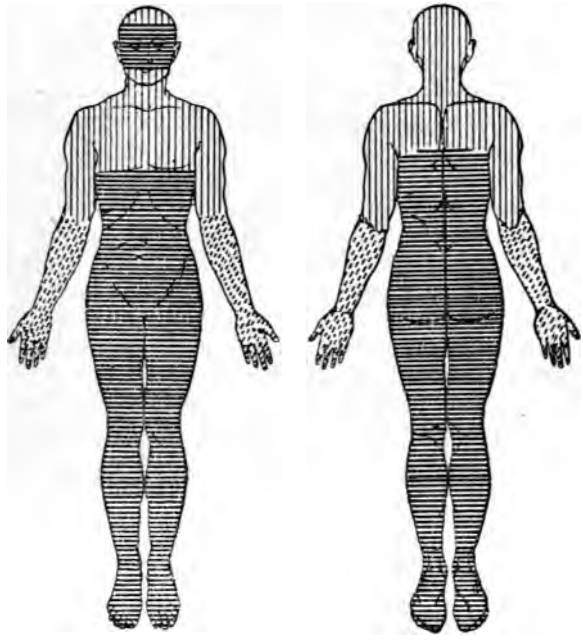
In April, 1888, it was noted that the muscles of the legs and right foot were not at all wasted; that the first phalanx of each of the four toes of the right foot appeared dislocated on to the head of the metatarsal bone, and so produced a claw-shaped position like that of the hands; the nails were much wasted, and were undergoing similar atrophic conditions to the nails of the right hand. The left foot appeared normal, except the toe-nails, which were beginning to waste. No other symptoms were noticed, the general health was very good.

In November, 1889, the patient began to suffer from girdle pains and attacks of nausea.

In January, 1891, he had several attacks of pemphigus on the back and palmar surfaces of his hands, which were generally preceded by a slight rise of temperature.

In October, 1891, it was noticed that the wasting of his right finger-nails had increased, and also that there was

FIG. 22.



Diagrams showing the alterations in sensation in the upper limbs, chest, and head.

—— Normal temp. sense.

| Area of loss of sensibility to temperature.

----- Area of loss of sensibility to pain.

apparent wasting and shortening of the terminal phalanges. The patellar reflex was increased with ankle-clonus on the right side, but there were no other fresh symptoms, except that he had several attacks of pemphigus in October, 1892.

The patient was then seen by Professor Hoffman, who suggested that the case was one of syringomyelia, the prominent symptoms being the wasting of the muscles, deformities,

and the trophic changes already described; and it was now found that whilst the tactile sensibility was quite normal, that to heat, cold, and pain was much impaired, and indeed was almost absent over a considerable area of the arms, chest, and head (Fig. 22). The loss of sense of temperature was especially marked in the case of cold, but was also observed to a considerable degree in the case of heat. In the lower extremities we noticed a slight spastic paraplegia, with increased knee-jerks and some ankle-clonus. The sensation was quite unaffected in the lower limbs, although there was a certain degree of ataxic gait and unsteadiness on standing with the feet together and the eyes closed. There was no trouble with the bladder or rectum. The pupils reacted normally to both light and accommodation; there was no paralysis of any ocular muscle, and no nystagmus was observed. There was no affection of any other special sense. No area of altered sensation was supplied by the fifth cranial nerve. The viscera were normal and the general health was good.

On March 5, 1893, in the afternoon, the patient had a fainting fit for a few minutes. Next morning it was noticed that he had great difficulty in speaking, that the tongue was protruded towards the right side, and the lower half of the face on the right side seemed paralysed. The right arm and leg were slightly weak, and the head was turned a little to the left side. The patient understood all that was said to him, and seemed to want to reply, but was unable to do so. He could only articulate simple words, such as "yes," "no," "one," "two." The knee-jerks were much increased on both sides; there was no ankle-clonus; the plantar reflexes were slightly increased. As far as could be made out, the difficulty in speech seemed to have come on gradually and without loss of consciousness.

On March 7 the patient had considerable difficulty in swallowing. The pupils remained dilated, but acted to light. The legs were in a state of extreme spasm, and could only be flexed with difficulty.

On March 10 the right arm and leg were noticed to have lost all power. The patient was semi-comatose, and he began to suffer from hypostatic pneumonia and bronchitis. His temperature was 102·4°. He could not swallow anything, and it was impossible to rouse him or to make him understand any observations addressed to him.

This condition continued, the breathing became worse,

and the patient died on the 12th, a week after being taken worse.

Post-mortem made twelve hours after death. Rigor mortis well marked in both upper and lower limbs. Scars were noticed in front of both shoulder-joints and of the right wrist. Old-standing dislocation of both wrists, left shoulder, right thumb, and outer end of right clavicle. Knees, elbows, and ankles normal. On the left hand were some bullæ found in the following positions:—two on forefinger, one on second and third fingers. The terminal joint of the left thumb was dislocated forwards; nails normal. The nail of the right little finger was absent; on the other digits of the right hand the nails were much wasted; all the terminal phalanges except those on the little finger were much shortened and atrophied.

The *lungs* showed well marked hypostatic pneumonia and bronchitis.

The *spleen* was enlarged, and showed evidence of old perisplenitis.

The *kidneys* showed an early stage of interstitial nephritis.

Nothing special was found in the *heart;* the left ventricle was a little hypertrophied.

The *brain* weighed 3 lbs. The left half of the cerebrum was larger than the right, and the convolutions were more flattened; over the motor areas there were signs of some softening (Fig. 23). The right lobe of cerebellum was much smaller than the left; the under surfaces of both halves, especially that of the right, were hollowed out a little, and the membranes over this part were thrown into folds (cysts).

On making vertical sections of the cerebrum a small hæmorrhage was found just under the lower part of the left frontal convolution, and this section showed a few more tiny hæmorrhages in the white matter.

The lateral ventricles were considerably dilated, especially the left; the iter a tertio ad quartum ventriculum was also dilated, but the fourth ventricle was not.

The right occipital lobe was much atrophied along the calcarine fissure. There was considerable atheroma of the basal arteries, especially of the left middle cerebral, and the lumen of this vessel was blocked by a white thrombus, and in consequence there was considerable softening of the cortex, especially in the parietal region.

The fourth, fifth, and sixth cervical vertebræ were anchylosed together, and there were some bony outgrowths project-

ing back into the lumen of the spinal canal, and to these the dura mater was firmly adherent.

On cutting through the *spinal cord* in the cervical region it was at once apparent that a central cavity existed.

FIG. 23.

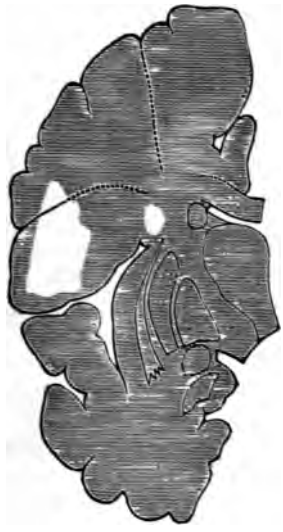


FIG. 24.

Frontal section of cerebral hemispheres showing softening on the left side.

From transverse sections of the cord which were made by Dr. James Taylor and stained by Pal's method, and also by carmine and by hæmatoxylin in the ordinary way, the following changes were made out:

In the *lower dorsal region* there was no cavity in the cord, which was normal with the exception of the posterior grey commissure, which was spindle-shaped, being very wide from before back at the middle line. The central canal could not be made out, but its place was taken by an overgrowth of nuclear cells. A collection of these cells was particularly noticed at the junction of the posterior commissure with the necks of the anterior and posterior horns on either side, but the increase of the cells was not particularly noticed around the blood-vessels.

In the *upper dorsal region* all the central grey matter, except the extreme anterior part of the anterior horns, was

occupied by a cavity which extended transversely across the cord from the level of one anterior horn to that of the other. The cavity formed a narrow transverse slit, with its anterior and posterior walls almost in apposition. The posterior commissure behind the cavity was enlarged in its antero-posterior diameter, especially opposite the posterior median septum, and was composed of gelatinous grey substance; surrounding the cavity in this substance were layers of cells.

The anterior commissure was very slightly, if at all, represented.

The cells of the anterior horns were not affected.

In the *cervical region*, extending transversely in the posterior commissure from the inner side of one anterior horn to that of the other side, was a cavity. This cavity was bounded by a sinuous edge, which appeared to be made up of fine fibres; the posterior wall of the cavity was formed of the gelatinous grey matter, and behind this were layers of cells. In front there was no anterior commissure, but the cavity was bounded by a narrow wall, which was formed by the pia mater of the anterior median fissure; next to the cavity there were in this wall several layers of oval cells, which, from their size and arrangement, were probably derived from the ependyma. The anterior horn on both sides was composed of fine nuclear cells, with very little of the fine plexus of fibres of the spongy grey matter left. The tissue was much broken down, forming one or two cavities quite distinct from the central cavity. There were a few cells in the anterior horn, but they had no processes. The part of the posterior commissure behind the central cavity was composed of a thick network of fibres staining deeply with carmine, with rows of nuclear cells between the fibres (? substantia gelatinosa centralis), and gave the appearance of a ⌣⌣, the arms of which were prolonged into the neck of the cornua, pushing the spongy network before them, so as to extend almost to the white antero-lateral columns.

The blood-vessels were well marked, the coats of the arteries thickened, and the space containing the artery and its vein, especially the anastomotic branch of the antero-spinal, were enlarged.

The posterior roots in the cervical region showed several nerve-fibres, in which the myelin was much enlarged and no axis-cylinder to be made out. There was no definite sclerosis in the lateral columns, but the medullated fibres were fewer in number in those columns.

DESCRIPTION OF PLATE III,

To illustrate Dr. Beevor's and Mr. Lunn's Case of Syringomyelia.

The upper figure is a microphotograph of a transverse section of the spinal cord through the middle of the cervical enlargement, stained by hæmatoxylin, and it shows the central canal very much dilated. The anterior columns are seen at the lower half of the figure with the anterior fissure between them.

The lower figure is from a section through the upper dorsal region of the spinal cord, and shows the central canal enlarged, but to a less extent. The anterior columns are seen in the upper half of the field.

FIG. 1.

FIG. 2.

Collotype by Danielsson & Co.

The left wrist showed backward dislocation of radius and ulna.

The right shoulder: the head of humerus was in normal position; backward dislocation of acromial end of clavicle.

The elbows, hips, left foot, and ankle-joints were normal.

The big toe of the right foot had been amputated thirty years ago. The nails on the right hand and foot were much atrophied and wasted.

Description of parts sent to Mr. Targett for examination, including the left shoulder-joint and the right hand.

Left shoulder-joint (Fig. 25).—The anterior half of the glenoid cavity was entirely worn away, and a new socket for the head of the humerus was formed upon the front of the neck and subscapular fossa. The margins of this socket were largely composed of new bone. The head of the humerus was likewise misshapen, being flattened considerably from before backwards; its surface in contact with the scapula was largely deficient of cartilage, and in places eburnated, while that opposed to the capsule of the joint was much nodulated. Movements in this articulation were apparently very limited. As regards the interior of the capsule and the articular surfaces generally the aspect was that of osteo-arthritis. The synovial membrane was beset with villous processes, and embedded in the fibrous tissue were the usual additamentary bones.

Right wrist-joint.—Here a considerable amount of deformity was noted in consequence of the partial erosion of the lower extremity of the radius and the subsequent displacement of the carpus upwards and forwards. The latter chiefly articulated with a buttress of bone upon the anterior surface of the radius, the carpal bones being moulded in adaptation. The capsule of the joint was enlarged and lax, and its synovial membrane covered with villi and polypi of various sizes. The membrana sacciformis was not especially enlarged, but the capsule formed a marked bulging beneath the extensor tendons on the wrist. Many of the intercarpal joints were larger than normal, and some of them showed destruction of their articular cartilage. The changes in the parts examined seemed quite indistinguishable from those of osteo-arthritis. The erosion was nowhere excessive, and the cartilaginous outgrowths and new bone formation not more

than commonly met with in such joints. I think that in the absence of a clinical history these articulations would have been regarded as typical examples of osteo-arthritis.

FIG. 25.

Left shoulder-joint, to show head of humerus above and glenoid cavity below.

Bones of right hand (Figs. 26 and 27).—The shafts of the metacarpals and first phalanges seemed somewhat small in proportion to their articular ends; but as there were outgrowths of cartilage on the heads of the metacarpals the appearances may have been delusive. The skin of the hand

was removed entire together with the terminal phalanges; hence the condition of the latter was not examined. The position of the fingers is shown in the photographs. Perhaps the most noticeable feature about them is the con-

FIG. 26.

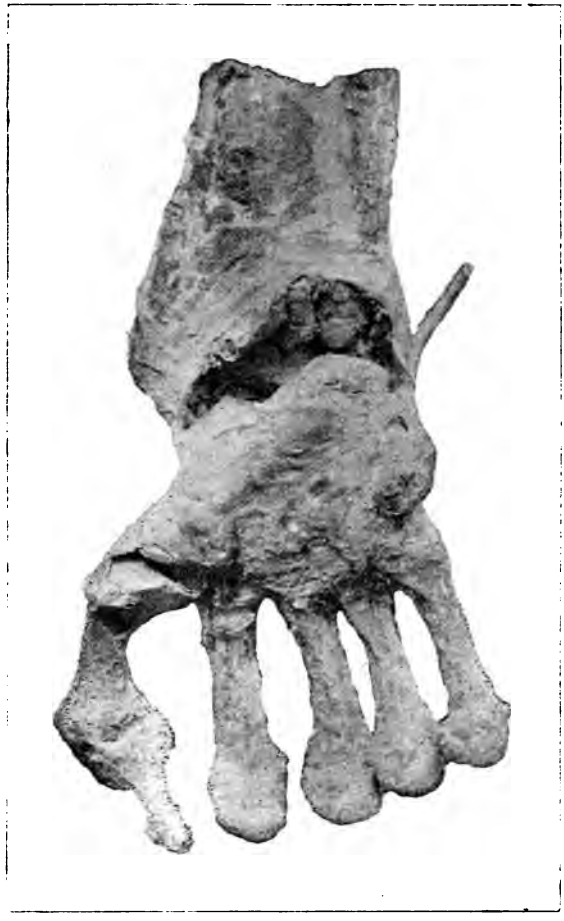
Right hand, palmar aspect, to show atrophy of phalanges and nails.

dition of the nails, which are much incurved, thickened, and deformed.

Each nail is raised from its bed, and projects at an angle from the end of the digit. Its cavity was filled with horny material, and the whole nail was very small and narrow.

Remarks.—The case having been under observation for ten years, presents two special groups of phenomena.

FIG. 27.



Bones of right hand, to show dislocation of wrist, and outgrowth of cartilage on the heads of the metacarpal bones.

(1) Wasting of muscles in the arms and shoulders more or less symmetrical, but especially affecting the intrinsic muscles of the hands:

(2) Sensory symptoms chiefly of the nature of impaired

sensibility to heat and cold, and insensibility to pain, while the tactile sensibility remained normal.

(3) Trophic changes. In addition, the trophic changes noticed in the digits, joints, and nails, and well-marked changes in the skin, as pemphigus, and painless whitlows, constitute a well-marked feature of the disease.

Pathologically, syringomyelia is usually described in text-books as of two forms. (1) Dilation of a normal central canal of the cord. (2) A new growth in the central part of the cord, often with cavity formation, sometimes associated with new growths elsewhere (glioma, syphilis and sarcoma). The explanation of the symptoms depends on the fact that the dilated canal or new growth to a considerable degree destroys the ganglion-cells in the anterior cornu, thus producing wasting in the muscles and fibrillar movements as in progressive muscular atrophy, and trophic joint changes with consequent deformities; and as the condition is generally met with in its most marked degree in the upper part of the cord, the arms are chiefly affected.

In this case the long duration of the symptoms (ten years) points probably to the fact that it belongs to the group of cases dependent on a congenital abnormality taking on process of overgrowth, and not to those depending on new growth.

According to the classification given by Prof. Hoffman,* this case would come into the class II *a* (β), which is characterised by a dilated central canal, around which there is a periependymal sclerosis, *i. e.* an increased proliferation of the cells of the ependyma with an overgrowth of fibrous tissue around the cavity. Hoffman's classification is as follows:

I. Hydromyelus.
II *a*. Primary gliosis (central) of cord.
(*a*) Without cavities, periependymal sclerosis.
(β) With cavities.
II *b*. Central gliomatosis, with or without cavities.

The report of the committee of 1884 that the condition was due to a central nervous affection, and that it was akin to what is known as Charcot's disease, has proved to be correct, but at that time the peculiar affection of sensation, viz. loss to pain and to heat and cold, with retention of tactile

* "Zur Lehre von der Syringomyelie," *Deutsch. Zeitschr. f. Nervenheilkunde*, Bd. iii.

sensibility which is now known to be characteristic of syringomyelia, had not been worked out, and consequently the diagnosis of this disease could not be made. We are greatly indebted to Professor Hoffman, of Heidelberg, for his extreme interest and help in the diagnosis of the case. In conclusion, we are anxious to acknowledge most cordially the assistance that we have received throughout this long and intricate case, and for the admirable sections made by Dr. James Taylor. The hands exhibited were mounted by Mr. Targett, who also furnished photographs of them, and for his help we have to return him our heartiest thanks. We wish also to tender our best thanks to Mr. Nolan, of Guy's Hospital, for his excellent photographs of the sections, and to the assistants for the careful notes they made for us during the long progress of the case.

XL.—*A Case of Enteric Fever occurring in a diabetic subject.* By G. V. Poore, M.D. *Read May* 11, 1894.

T. H., æt. 35, married, a painter, engaged at the railway works at Wolverton, was admitted to University College Hospital on October 5, 1893. He was suffering from diabetes of moderate severity and there were no facts in his family or personal history which threw any light on his trouble. He remained in hospital until January 27, 1894, a period of sixteen weeks and two days. His condition was closely observed, and (thanks to the zeal and energy of my house physician, Mr. Streatfeild, and of Mr. Ghani and Mr. Connell, the clinical clerks who successively had charge of the case) no less than 105 separate estimations were made of the amounts of urea and sugar voided in successive periods of twenty-four hours.

On November 16, 1893, the patient being then on a strict diabetic diet developed enteric fever, which continued for six weeks exactly (from November 16 to December 28 inclusive). Herein lies the special interest of the case, and my object in bringing it before the Clinical Society is, mainly, to direct attention to the effect of an intercurrent attack of continued fever, upon the output of urea and sugar.

The febrile attack might be called one of simple continued fever without complications. There was no diarrhœa, but the stools, which were the result of daily enemata, were many of them characteristic of typhoid. He never had during his attack of fever more than one stool per diem, and during the forty-two days of fever there were forty-one stools. He had headache in the early days, a characteristic tongue, a few typical spots, and a slightly distended abdomen, so that we had little hesitation in regarding the fever as enteric. The cause of the attack is doubtful. During his stay in hospital there were other cases admitted to the wards, and it is possible that he may have been infected accidentally; but as at the time of his attack he was eating plentifully of watercress, I have looked suspiciously at this as being possibly the cause of the enteric fever.

In order to reduce this view of the case to a manageable form I have divided it into sixteen weekly periods (Table I),

and to this end I have simply added together the daily numbers for each successive period of seven days. In the few instances in which the figures for a day have been wanting I have supplied the omission by taking the average of the figures actually recorded.

In Table II I have summarised these weekly results, and have given a statement of the patient's condition during five different periods, having for the sake of comparison reduced the numbers of each period to the form of a weekly average.

The periods into which the case is naturally divided are as follows:

1. One week during which the patient was upon ordinary diet.
2. Five weeks during which the patient was taking a strict diabetic diet.
3. Six weeks during which the patient was suffering from enteric fever.
4. Two weeks succeeding the fever during which the temperature was subnormal.
5. Two weeks of normal temperature, during which the patient was in his normal (diabetic) condition.

I have no evidence to offer that any pharmaceutical preparation had any effect upon the discharge of sugar. During his stay he took opium, salicylate of soda, pancreatic extract (by the mouth), and lævulose. While he was taking opium (the diet being unrestricted) the discharge of sugar increased. The discharge of sugar rose also after the adminstration of so-called "lævulose," which was found on analysis to contain 20 per cent. of dextrose. Prior to the onset of the fever the bowels were kept rather freely open by saline purgatives.

Table II will show that the effect of diet was very marked.

Before dieting, his weekly average amounted to 1218 ounces of urine, of specific gravity 1040, containing 7900 grains of urea and 22,218 grains of sugar.

After dieting, his weekly averages (for five weeks) amounted to 673 ounces of urine, of specific gravity 1026, and containing 6118 grains of urea and 3781 grains of sugar (slightly more than one sixth of the amount of sugar previously discharged). During this period the discharge of sugar and urea was least in the second week, and then progressively increased until the onset of the fever.

In the third period (six weeks of fever) the weekly average amounted to 491 ounces of urine, of specific gravity 1016, and containing 4263 grains of urea and 1214 grains of sugar.

During the period of subnormal temperature (two weeks) the figures reached their lowest point, and amounted to a weekly average of 644 ounces of urine, of specific gravity 1014, and containing 3577 grains of urea and 989 grains of sugar. During this period there were three days (January 2, 3, 4) on which no trace of sugar could be found in the urine.

During the fifth period, the last two weeks in hospital, the figures rose again, and the weekly average amounted to 537 ounces of urine, of specific gravity 1035, and containing 6105 grains of urea and 7511 grains of sugar. Thus the weekly average amounts of urine, urea, and sugar of these five periods were as follows:

	Ounces of urine.	Grains of urea.	Grains of sugar.
Ordinary diet	1,218 ...	7,900 ...	22,218
Diabetic diet:			
(*a*) Normal temperature...	673 ...	6,118 ...	3,781
(*b*) During fever ...	491 ...	4,263 ...	1,214
(*c*) Subnormal temperature	644 ...	3,577 ...	989
(*d*) Normal „ ...	537 ...	6,105 ...	7,511

The onset of fever was marked by a very sudden change in the condition of the urine. Thus on the day preceding the fever (November 15) the patient passed 107 ounces of urine, containing 1284 grains of urea and 889 grains of sugar; and on the first day of fever (November 16) the numbers were 93 ounces of urine, containing 1000 grains of urea and 235 grains of sugar. If we take the total output for the 3 days preceding (November 13, 14, 15) the fever, and contrast it with that of the first three days of fever, the change is very marked.

	Ounces of urine.	Grains of urea.	Grains of sugar.
November 13, 14, and 15 ...	310 ...	3839 ...	2531
„ 16, 17, and 18 ...	235 ...	2100 ...	546

Thus in the first three days of fever as contrasted with the three preceding days the amount of urine was diminished by 75 ounces, the urea by 1739 grains, and the sugar by 1985 grains.

The cause of the rise of temperature was not at first diagnosed, so that no arbitrary change of diet was made immediately at the onset of fever. There may have been loss of appetite, and the less amount of nitrogenous food consumed (or assimilated) may have been sufficient to account for the fall in the output of urea.

The figures lend no support to the theory that the output of urea is increased during fever.

The statement that during fever the discharge of sugar by diabetics is lessened, or ceases altogether, appears to be generally accepted; but it will be observed that in this case the total disappearance of the sugar did not occur until the fifth, sixth, and seventh days after the complete cessation of fever, viz. on the 2nd, 3rd, and 4th of January, 1894, when the temperature was 97·1°.

On these three days the output was as follows:

	Ounces of urine.	Grains of urea.	Grains of sugar.
January 2, 3, and 4	294 ...	1088 ...	Nil

On looking through the records of this case to see if there was any relation between the output of sugar and the increase or decrease of any of the other symptoms recorded, the results were at first negative. There was no relation between the output and the temperature. True, the least amount of sugar was when the temperature was at its lowest, but the next least amount was during the febrile period, when the temperature was highest. During the six weeks of fever the amount of sugar varied, and the variations bore no definite relation to the variations in temperature.

There was equally no correspondence between pulse-rate and the sugar voided. The pulse was at its lowest point (57) in the first week when the amount of sugar was at its highest, and the same pulse-rate was observed when the sugar output was at its lowest in the post-febrile period. The attempt to show any relation between the rate of respiration and the sugar output also gave a negative result.

When, however, we examine the pulse-respiration ratio we seem to find some correspondence between it and the amount of sugar voided. It appears that the sugar output declined as the pulse-respiration ratio declined, and that when the respirations increased in proportion to the number of heart-beats the amount of sugar lessened.

	Sugar per week.	Pulse.	Respiration.	P./R.
1st period (without diet) ...	22,218 ...	57 ...	14 ...	4·07
2nd period (with diet) ...	3,781 ...	61 ...	17 ...	3·6
3rd period (febrile) ..	1,214 ...	69 ...	21 ...	3·4
4th period (post-febrile) ...	989 ...	61 ...	18 ...	3·4
January 2, 3, and 4 ...	0 ...	54 ...	18 ...	3·0

A glance at the above table shows that (if we exclude the

febrile period) the output of sugar fell as the value of $\frac{P.}{R.}$ declined.

It is interesting to note that during the first week when the diabetic symptoms were strongly marked, not only were the rates of pulse and respiration exceptionally slow, but the pulse-respiration ratio was at its highest, there being only 14 respirations per minute to 57 beats of the pulse. As soon as the patient was dieted the rates of pulse and respiration were notably quickened, but while respiration rose from 14 to 17 (22 per cent.) the pulse only rose from 57 to 61 (7 per cent.).

An increase of respiration without a proportionate increase in pulse-rate (the lungs continuing healthy) may fairly be taken to mean that the combustion in the body is more perfect, and that more carbonic acid escapes from the lungs in proportion to the work of the body. Some of the carbon which would otherwise appear in the urine as sugar escapes by the lungs in the form of carbonic acid. It is to be noted that the pulse-respiration ratio has been calculated upon averages and not upon single observations, so that we run less chance of accidental errors.

In the tables which accompany this paper I have given the number of heart-beats and respiratory movements taking place in each week, numbers obtained by multiplying the average rate of pulse and respiration respectively by the figure 10,080, which is the number of minutes contained in a week.

These figures are very large, and their importance is brought out by comparing the first week before the patient was dieted, when the sugar was at its highest (22,218 grs.), with the week ending January 6, when the sugar was at its lowest (148 grs.).

In both these weeks the pulse-rate was the same (57), and the total beats of the heart in each week was 574,560; but while in the first week the rate of respiration was 14, and the total respirations may be estimated at 141,120, in the week ending January 6 the rate of respiration was 18, and the total respirations may be estimated at 181,440, or an increase of 40,320 respirations in the week, which means an elimination of over 800,000 extra c.c. of carbonic acid.

The importance of this fact (if fact it be), that the output of sugar bears some relation to the pulse-respiration ratio, was not appreciated while the patient was in hospital. This, of course, in one sense, is fortunate, because the pulse and respi-

ration rates were not taken with any preconceived notion, such as might have given bias to the observer. It is unfortunate, however, that for the last fortnight of the patient's stay in hospital (when he was regarded as practically well) the respiration rates were not recorded. The pulse, however, it will be observed, became rapid at this time, and my observations of the patient do not lead me to think that there was any proportionate increase in the respirations. This is uncertain, and I have omitted the last fortnight from my calculations.

In Table I the weights of the patient at different times are recorded. It will be observed that as soon as he was dieted his weight began to increase. Between October 9 and November 10 his weight increased from 8 st. 9 lbs. to 9 st. 4 lbs., a gain of 9 lbs. in thirty-two days, or 4½ ounces per diem. If we may assume that he continued to gain in weight at half the same rate up to the commencement of the fever, it is probable that on November 16 he weighed nearly 9 st. 5 lbs. On January 10 (twelve days after the termination of the fever) he weighed 8 st. 5½ lbs.; and on January 24 he weighed 9 st. 2½ lbs., a gain of 11 lbs. in fourteen days; and if we may assume that he had gained at a similar rate between December 28 (day of the termination of the fever) and January 10, this would make his weight at the termination of the fever 7 st. 8½ lbs. Actual record shows that he lost 12½ lbs. during his fever, but he must have lost more than this, and our calculations make it probable that his six weeks' fever cost him 24 lbs. of body-weight. Be this as it may, it is interesting to note that his greatest freedom from glycosuria occurred not only when the body temperature was depressed, but at a time when the needs of the body were great, and he was replacing the loss of weight which the fever had cost him.

The facts of this case are of undoubted interest, otherwise I should not have troubled the Clinical Society with the narration of them.

As to the speculations concerning the relation between sugar output and pulse-respiration ratio, I have no desire that they should be taken for more than they are worth. That there was such a relation in the case under review seems undoubted, but one case is insufficient to ground a theory upon. I trust that members of the Society will observe the point, and help to show whether such a relation be due to accident or necessity.

With regard to the pathology of diabetes we are still profoundly in the dark. Derangements of the nervous system, liver, and pancreas seem all capable of producing glycosuria.

Have we paid sufficient attention to the condition of the parotid and other salivary glands, and are these glands ever systematically examined post mortem? I ask the question because I think I have noticed a similarity of facial outline in several young diabetics with smooth faces. This peculiarity consists in a certain prominence in the outline of the masseter muscles such as I have not observed in other wasting diseases. Is this caused by an atrophic condition of the parotids? Is there often a previous history of mumps in young diabetics? These are points which I think are worth attending to. The diabetic is unable to make use of starchy food. This sometimes depends upon disease of the pancreas. Are the salivary organs ever at fault? I am sorry to leave this question in interrogatory form. I have no answer to give, but on pondering the question I call to mind one diabetic (an adult) whose disease was certainly accelerated after an attack of mumps. The point seems to me to be worthy of attention.

TABLE I.—T. H. *Weekly Averages.*

Date. Week ending—	Urine (ounces).	Average sp. gr.	Urea (grains).	Sugar (grains).	Daily mean temperature.	Average pulse-rate.	Total heart-beats.	Average rate of respiration.	Total respirations.	Stools.	Weight.	
1893 October 11	1218	1040	7,900	22,218	98·5°	57	574,560	14	141,120	10	8·9 Oct. 9	Week without diet. (Normal temp.)
October 18	714	1024	8,568	4,570	98·2°	62	624,960	16	161,280	5	8·13 Oct. 18	5 weeks on rigid diabetic diet. (Normal temp.)
25	637	1022	4,460	1,710	98·2°	60	604,800	17	171,360	10	—	
November 1	672	1024	4,704	3,311	98·4°	58	584,640	17	171,360	6	9·1 Oct. 27	
8	665	1029	5,400	3,914	98·2°	63	635,040	17	171,360	13	9·2½ Nov. 3	
15	679	1032	7,460	5,400	98·1°	61	614,880	18	181,440	8	9·4 Nov. 10	
Total	3367	—	30,592	18,905	—	—	3,064,320	—	856,800	—	—	
Weekly average	673	1026	6,118	3,781	98·2°	61	610,864	17	171,360	8·4	—	
November 22	490	1026	5,390	2,091	100·6°	73	735,840	20	201,600	6	—	6 weeks of enteric fever. Diabetic diet.
29	483	1018	4,830	1,144	100·4°	65	655,200	22	221,760	7	—	
December 6	497	1022	4,677	2,327	100·6°	74	745,920	22	221,760	7	—	
13	420	1015	3,753	639	100·8°	68	685,440	22	221,760	7	—	
20	539	1011	3,776	598	99·6°	80	806,400	22	221,760	7	—	
27	518	1008	3,152	486	99·4°	59	594,720	20	201,600	7	—	
Total	2947	—	25,578	7,285	—	—	4,223,520	—	1,290,240	—	—	
Weekly average	491	1016	4,263	1,214	100·4°	69·7	703,920	21·5	215,040	7	—	
1894 January 3	700	1010	3,583	720	97·4°	58	584,640	19	191,520	7	—	2 weeks subnormal temp. Diabetic diet.
10	588	1018	3,572	1,258	97·9°	64	645,120	17	171,360	6	8·5½ Jan. 10	
Weekly average	644	1014	3,577	989	97·6°	61	614,880	18	181,440	6·5	—	
January 17	519	1035	6,073	6,322	98·4°	75	776,000	—	?	9	8·13	2 weeks normal temp. Diabetic diet.
24	558	1035	6,137	8,701	98·5°	84	846,720	—	?	7	9·2½	
Weekly average	537	1035	6,105	7,511	98·45°	79	811,360	—	?	—	—	

TABLE II.—T. H. *Weekly Averages. Summary.*

	Urine (ounces).	Specific gravity.	Urea (grains).	Sugar (grains).	Daily mean temperature.	Average pulse-rate.	Total heart-beats.	Average rate of respiration.	Total respirations.	Value of $\frac{P.}{R.}$
Without diet	1218	1040	7900	22,218	98·5°	57	574,560	14	141,120	4·07
With diet	678	1026	6118	3,781	98·2°	61	610,864	17	171,360	3·6
Febrile period (with diet)	491	1016	4263	1,214	100·4°	69·7	703,920	21·5	215,040	3·24
Post-febrile period, sub-normal temp. (diet)	644	1014	3577	989	97·6°	61	614,880	18	181,440	3·4
Normal temp. (diet)	537	1035	6105	7,511	98·45°	79	811,360	?	?	?
Week ending Jan. 6, during three days of which sugar was absent from the urine	698	1008	2762	148	97·3°	57	574,560	18	181,440	3·16

XLI.—*Hæmoglobinuria from Muscular Exertion.* By Lee Dickinson, M.D. *Read May* 11, 1894.

HÆMOGLOBINURIA from muscular exertion does not often come under medical notice. Its best examples are not associated with illness, and it can only be called a *clinical* phenomenon in that liberal use of the word which includes all that may be of medical interest in the living subject.

The three following cases are examples of hæmoglobinuria of this kind. The first came under my own observation. For notes of the other two I am indebted to gentlemen who were the subjects of the hæmoglobinuria which they described.

Case 1.—A medical student aged 19, accustomed to athletics, but who since the previous autumn when he entered the school of a London hospital had necessarily enjoyed less physical exercise than formerly, first noticed abnormality of the urine after running a three-mile race on a hot day in summer. He was in good health, but untrained. In the race he was not pressed, but won easily, and there was no grave distress at its end. The first urine passed after the race was scanty, turbid, and so deeply red as to excite wonder, not to say alarm.

During the next two years on three similar occasions the same appearances were observed, and always rapidly passed off. On one of these occasions, after a mile race, there was considerable temporary distress of the ordinary kind produced by such exertions, the runner having been put to his furthest efforts. I had the opportunity of examining the urine. That first passed, amounting to about four ounces, was of the colour of porter and highly turbid. It deposited a copious dark sediment consisting of granular débris and granular casts, with no blood-corpuscles. The supernatant fluid appeared strongly red in a small test-tube, and, though not submitted to the spectroscope, was evidently freely imbued with hæmoglobin. It was highly albuminous (coagulum = $\frac{3}{5}$). A few hours later, when the urine was in larger quantity, it was only slightly tinged red and slightly albuminous. Next morning it was normal.

Case 2.—The circumstances of this case were very similar to those of the first. The subject was a medical student of

about the same age and in good health, in whom the hæmoglobinuria appeared after a three-mile race. There was no serious exhaustion, but some blueness from dyspnœa. The urine was not examined chemically or microscopically, but arrested attention by its colour and gave rise to a fear of calculus, of which, however, there was no symptom.

This gentleman tells me that he learned from an experienced attendant at the running-ground that it is not very uncommon for the urine to appear bloody after a severe run, especially at the beginning of training.

CASE 3.—In this case the hæmoglobinuria occurred on two successive days after a hard game of lawn tennis, the subject of it being a house surgeon of a London hospital. Immediately after the game the urine was "of a dark reddish colour, perfectly clear with no sediment, containing no red corpuscles, but plenty of hæmoglobin." In the course of two hours it returned to the normal condition. There was no feeling of illness nor any discomfort beyond slight frequency of micturition.

The urine had always been free from albumen.

Remarks.—It is now almost generally admitted that the blood-destruction upon which hæmoglobinuria *a frigore* depends occurs in the general circulation, and that the part played by the kidneys is simply that of excretion. There is no reason to suppose that the kidneys have anything more to do with hæmoglobinuria from exertion, which evidently depends upon extraordinary blood-destruction brought about in some way by muscular action,—perhaps merely an exaggeration of the blood-destruction which is the normal result of exercise.

Muscular exertion of no great severity is known to be an occasional cause of hæmoglobinuria. A few cases have been traced to the strain of military marching or ordinary walking,* mostly in young men of or about the age of adolescence.

Among adolescents the appearance of albumen in the urine is stated to be a comparatively frequent result of muscular exertion. Dr. Ralfe † considers that this "functional albuminuria is only a minor manifestation of hæmoglobinuria, and that the two conditions may merge one into the other."

* Fleischer, *Berl. klin. Woch.*, No. 47, 1882; Kast, *Deutsch. med. Woch.*, No. 52, 1884, and No. 34, 1891; Robin, *Gaz. Méd. de Paris*, 1888; Köster, *Therapeut. Monatshefte*, Feb., 1893.

† *Lancet*, October 23, 1886, and November 24, 1888.

In support of this view he gives valuable observations upon the character of the urine of functional albuminuria, and narrates three cases in the course of which hæmoglobinuria occurred, though apparently as the result of a chill, not of exertion. Of sixteen cases of "paroxysmal albuminuria" observed by him, in four hæmoglobinuria had occurred at some time or other. Bastianelli* has recorded a case still more to the point, in which hæmoglobinuria from walking alternated with albuminuria from the same cause.

There is, then, a condition which may be called functional hæmoglobinuria, like functional albuminuria, a disease chiefly of adolescence, and occurring in those of a nervous or dyspeptic temperament. It is chronic in the sense of being producible at will by comparatively trivial exertion. It probably depends essentially upon abnormal liability of the blood-corpuscles to destruction.

On the other hand, in cases like the three which I have brought forward there is destruction of normal blood, and so far the hæmoglobinuria is comparable to that caused by burns and certain poisons.

The possible importance of blood-changes as a result of severe exertion was brought before the Royal Medical and Chirurgical Society last May by Dr. Dukes, who related the case of a boy dying during a run, in whom the only morbid post-mortem appearance was "disintegration of the blood." In such a case, if death had not occurred, the disintegrated blood must have been excreted by the kidneys in the form of hæmoglobin or one of its derivatives in solution, and the detritus of corpuscles, and I suggest that such a case differs from those which I have related only in degree.

Disintegration of the blood by muscular exertion is not fully understood, but it is probable that carbonic acid is largely concerned in the process. Several years ago Professor Murri attributed to carbonic acid a partial responsibility for hæmoglobinuria *a frigore*, and in the discussion upon Dr. Dukes's paper Dr. W. Hunter pointed out how an excess of this gas may profoundly modify hæmoglobin and the tissues associated with it. Where there is no great distress carbonic acid cannot have accumulated largely in the blood; but perhaps the wear and tear of the red corpuscles in eliminating an unusual quantity of the gas may result in the destruction of a number large enough to produce hæmoglobinuria.

* *Centralblatt f. klin. Med.*, 1889.

Hæmoglobinuria of the kind I have described need not be regarded too seriously. It is a peculiarity not of the individual but of his condition, indicating that the muscular power is relatively great, and that the organs are sound.

The hæmoglobinuria of horses is to some extent analogous to that discussed in this paper, though but a symptom of a serious disease attended by muscular lesions unknown in the human subject.* Simple hæmoglobinuria from severe exertion has not been observed even in race-horses and hunters. Sudden muscular rigidity is the first symptom of the disease, the immediate cause of which is exercise after a period of inactivity and liberal diet. Then appears the hæmoglobinuria.

From recent observations by Professor M'Fadyean it is probable that the first pathological change is an over-production of red corpuscles, but there is no doubt that the onset of the symptoms is determined by muscular work, whether the rigidity which occurs so early be the cause or consequence of the blood-destruction.

* *Journ. of Comp. Pathology and Therapeutics*, March, 1888, and September, 1893.

XLII.—*A Case of Peliosis Rheumatica.* By MARTIN RANDALL, B.A., M.B. (introduced by Dr. ROSE BRADFORD, F.R.S.). *Read May* 11, 1894.

HARRIET V., æt. 42, housewife, admitted September 4, 1894, under care of Dr. J. Rose Bradford. Patient noticed swelling and pain in wrists, knees, and elbows on September 2, with an eruption on the right buttock, which spread to the thigh and leg on the same side and also on the left side. All these symptoms first appeared in the evening of September 2.

Previous history.—Scarlet fever nine years ago. Peritonitis five years ago; in hospital five weeks. Subject to sore throats. For past five years subject to profuse diarrhœa off and on, sometimes six to eight motions daily. Never had rheumatic fever. Married twice; two miscarriages by first husband. Married again five years ago; three miscarriages. During last five years had been a hard drinker, taking chiefly rum and beer. Had lived in England all her life save a few months in Holland about a year ago.

Family history.—Father died of heart disease and dropsy at seventy-seven. Mother alive; has osteo-arthritis. Several members of father's family said to have had cardiac affections.

State on admission.—Patient is a florid woman of forty-two. Mucous membranes pale. The body generally is well nourished; there is no œdema anywhere. Pulse 80, temp. 99·4° F., resp. 20.

Joints.—There is tenderness of knees and ankles, but these joints are neither swollen nor red. The wrist- and finger-joints in each hand are swollen and red; they are stiff and painful when moved; no other joints are affected.

Skin.—On the groins, buttocks, and thighs are numerous patches and papules, varying in diameter from an eighth to half an inch. Some are pale pink in colour and raised; of these some have a central hæmorrhagic spot. Others are not raised, and are uniformly red or purple in colour; a few are reddish brown. All are sharply defined. They are not specially connected with the hair-follicles. On the abdomen below the umbilicus are numerous ill-defined brown or yel-

lowish spots, not raised. The skin is moist, but sweat is not at all excessive.

Digestive system.—There is complete loss of appetite. Patient is frequently sick, the vomit consisting of curdled milk in a greenish sour-smelling watery fluid. There is no blood in it. Nausea is extreme. Bowels are not open. Tongue is moist, slightly coated with brown fur. Nothing abnormal detected in abdomen except tenderness in the right hypochondriac region, with some resistance over the same area.

Circulatory system.—There is occasional syncope and palpitation. Cardiac impulse weak; no enlargement or displacement of heart; sounds quite normal. Radial pulse 80, regular, small, of low tension. The arteries appear to be quite healthy.

Respiratory system.—Patient has a cough, and expectorates a little blood-stained mucus. The only physical sign detected in the chest is slight impairment of resonance over the left apex in front. Patient was ordered to rest in bed and to have Sod. Salicyl., gr. x, every two hours, and milk diet.

September 5.—Patient suffers from extreme nausea, with almost constant retching and vomiting. Salicylate stopped. Tinct. Iod., ♏iv in water ℥j, ordered every two hours. No fresh eruption.

September 6.—Sickness continues. Bowels open twice. Patient very restless and querulous.

September 7.—Bismuth and hydrocyanic acid mixture ordered for sickness, as the iodine and drop doses of Vin. Ipecac. have been tried in vain. On the upper arm on each side are new raised papules, with pink periphery, sharply defined, and a central hæmorrhagic spot, bright red in colour. Elbows are tender, but neither red nor swollen. The dorsum of the left hand and the fingers are much swollen. The hand pits deeply on pressure, and is extremely tender. On the index finger about the joints are some small red papules. The right hand is affected similarly, but to a less marked degree. Bowels open once. The spots and papules on buttocks and thighs are fading. Fomentations with belladonna and glycerine ordered for hands.

September 8.—Patient's bowels open; motion loose, dark chocolate colour, very offensive. Sickness less severe. There are some new papules on left arm. Urine: no blood, no albumen, no sugar. Ordered brandy ʒiij every four hours.

September 10.—Bismuth stopped. Sickness has stopped.

Hands much less swollen and less painful. Papules and hæmorrhages have appeared on front of knees. New hæmorrhages around joints of toes on each foot and on soles of feet.

September 12.—Patient is very noisy, quite delirious in fact, so that she has had to be moved into a private ward. The last three days has complained of loss of sight, but the ophthalmoscope shows no gross change. She has profuse diarrhœa. Motions very offensive, loose, and containing altered blood.

September 14.—Large crop of hæmorrhagic spots and papules on buttocks and back of thighs. New papules on both aspects of finger-joints, and one large one, one inch in diameter and one eighth of an inch raised, on left shoulder. Sight is regained. Takes food well now.

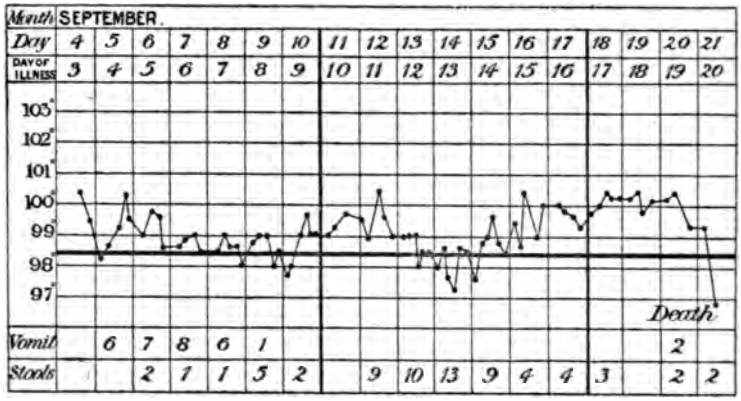
September 16.—On the buttocks there is sloughing in the situation of papules. There is a sharply defined, unhealthy, readily-bleeding ulcer on the fourchette. In the evening patient became semi-conscious after having been very noisy all day. Diarrhœa, which has been treated with β-naphthol and lead and opium, is less profuse. Motions still contain altered blood. Patient is getting very feeble. Pulse 110, small, weak. Tongue dry and brown.

September 17.—*Urine*, 1020, acid. Slight trace of albumen. Microscope shows a few red corpuscles and hyaline and blood-cysts.

September 18.—New crop of hæmorrhages on hands and feet. The sloughing on the buttocks and at the vaginal orifice has increased. No blood in motions.

September 20.—Sick again, three times. Numerous small hæmorrhages all over legs and arms. Patient now semi-conscious. Ordered brandy ℥ss every two hours.

September 21.—Patient much worse. Pulse 120, very small and weak. There are large sloughing ulcers on the buttocks, where the hæmorrhages were. For one inch upwards over the inner surface of each labium is a foul sloughy ulcer. The skin round the anus is excoriated. Patient gradually got weaker, and died quietly in the evening. The temperature is shown in the subjoined chart.



Autopsy, sixteen hours after death. Rigor mortis not present. Plenty of subcutaneous fat on body.

Pericardium contains a few drachms of clear straw-coloured fluid. There are a few petechiæ on the posterior and diaphragmatic surfaces of the parietal pericardium, none on visceral layer.

Heart of normal size. Muscle pale and soft. There are a few petechiæ on the endocardium of the left ventricle. No signs of endocarditis. Aorta quite healthy.

Pleuræ contained no fluid. There are a few petechiæ on the visceral pleura of each lung.

Abdomen.—No fluid in peritoneum.

Liver.—103 oz. Numerous old adhesions to diaphragm and stomach. Liver substance soft, pale, greasy. Lobules indistinct. Does not give the iodine reaction of albuminoid change.

Spleen very soft, and breaks down on attempting to free its universal adhesions to surrounding structures.

Kidneys appear normal to naked eye.

Stomach.—Contained grumous material. No altered blood. Mucous membrane of cardiac end very injected. There is a small ulcer with thickened raised edges, about the size of a threepenny piece, on the greater curvature.

Intestines.—Mucous membrane of whole of small bowel, from duodenum to cæcum, is covered with ulcers, of diameter from ⅓ to 1 inch. Some are on Peyer's patches; more independent of them. The edges are raised and thickened, but not overhanging. The floor does not reach the muscular

coat, and is unhealthy and sloughy in appearance. No ulcers in big bowel. No blood in lumen of gut.

Brain.—No meningitis. Convolutions wasted; interspaces filled with clear yellowish material. No haemorrhages. Ventricles not dilated. Optic nerves normal.

Several joints were opened. No blood in them, and articular surfaces, ligaments, &c., quite healthy.

Summary.

Rash.—Consisted of purpuric spots and of papules. The papules were at first pale, with a central haemorrhage in most of them. They then became haemorrhagic throughout. Some were raised, others not. They were often over the painful joints, but some were at a distance from the joints. It was not accompanied by any itching. Sloughing occurred in the summits of several of them. The gastro-intestinal affection was very severe, both diarrhœa and vomiting being most severe. There was much altered blood in the motions, but none in the vomit.

Post-mortem.—There was no evidence of recent or old endocarditis. There was no effusion into the joints, which appeared quite healthy. The liver was not cirrhotic, but very fatty. The intestines were ulcerated from stomach to anus, but there were no ulcers in the big bowel.

XLIII.—*Case of Purpura Hæmorrhagica with acute Pemphigus, probably induced by Influenza: treatment by large doses of sodium sulphocarbolate: recovery.* By Arthur Ernest Sansom, M.D. *Read May* 25, 1894.

C. H., schoolgirl æt. 12, admitted into the London Hospital November 15, 1893, under the care of Dr. Sansom. She was brought to the hospital extremely feeble, unable to stand, blood oozing from mouth and nose.

Her father suffered from varicose veins; her mother had experienced three attacks of rheumatic fever and a heart affection, and had had severe hæmoptysis before death. Sisters: one the subject of epilepsy, one had suffered from pleurisy. The patient was born at the end of five months' illness from rheumatism on the part of her mother.

Present illness.—Fourteen days ago she began to suffer from severe cold and cough; three days ago blood was noticed on the lips; next day blebs were seen on lips, tongue, and legs. Now her face is very pale, the eyelids are closed, there is a tendency to sleep. Extravasation of blood in both upper and lower eyelids, dark purple discoloration around inner canthus. Lips stained and coated with blood from the mouth. A small bleb on left ala nasi containing blackish fluid. On the chest and back a few round spots, especially in front of sternum and over left scapula: these are superficial, and vary in size from a millet-seed to a pea; some present a small central hæmorrhagic spot surrounded by a dark brown areola, others have dark blood-stained contents. There are several small blebs distributed over the abdomen: these are less superficial and of a dark purplish colour. On the arms also are a few similar spots of dark purple hue. Upon the dorsum of the right wrist there is a dark bluish mark as of a bruise, about the size and shape of a postage stamp; over the back of the phalanges of the thumb, index finger, and second finger of the left hand there are small blebs much raised above the surface, and containing a dark red, thin, watery fluid. These are tender on manipulation.

The legs present numerous and intermingled blotches and bruises, with blebs as those of pemphigus, the contents being blood-stained. The front of the legs from the patella to the ankles is chiefly affected, the dorsum of each foot less so. Just below the left ankle there is a small hard and blackened scab, the result of a broken bleb. The calves and popliteal spaces are almost free.

The more superficial of the spots, varying in size from a millet-seed to a pea, are of reddish-brown colour and of irregular shape: they are mostly dry with a small dark point in their centre, probably indicating a hæmorrhage. More deeply situate than these are spots of about the same size, with apparently fluid contents. Here and there the deeper tissues have a bruised and bluish appearance, the patches being about half an inch in diameter. There are several larger spots on the outer side of the left leg below the patella; these are of a dark red colour, and appear to be vesicles of pemphigus which have discharged their contents.

The tongue is of a dark colour; several small bullæ are distributed over its dorsum and sides. These contain a dark blood-stained fluid, and it is the bursting of these which seems to cause the visible hæmorrhage. On the inside of the lips are several similar bullæ.

The patient has vomited after food, the vomit being stained with fresh blood. The motions are darkly stained and mixed with blood; they are partly formed and partly liquid. The liver dulness extends slightly below the costal margin; there is no jaundice. The spleen is normal in size and position. The abdomen is not distended and not tender, presenting no abnormal signs.

The pulse is 124, fairly full, but the shock is abrupt. The area of præcordial dulness is normal: a slightly pronounced systolic murmur is heard at the apex and along the left border of the sternum as high as the clavicle; it becomes inaudible over the aorta.

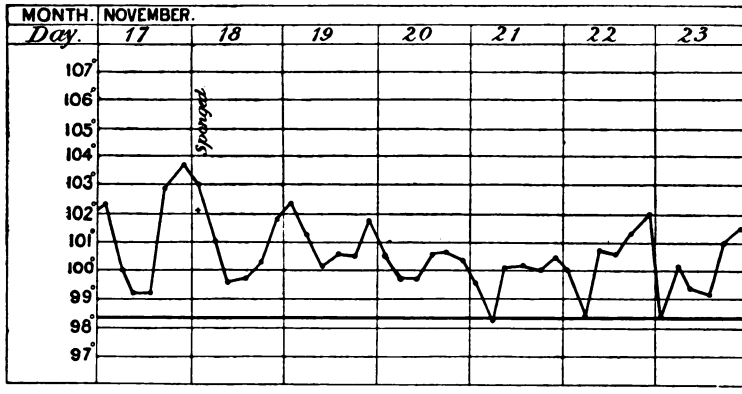
The respiration is very rapid, 34 per minute. There is no cough, but copious expectoration of a deeply blood-stained fluid. A few bronchitic râles are heard over the front of the chest on each side and over the base of the right lung.

With regard to the *nervous system* there is some frontal headache and a tendency to vomit after food, but the child is very intelligent. The motor power is impaired only through

extreme weakness. The deep reflexes are present. The pupils are unequal in size, the left being larger; the irides react both to light and to accommodation. No hæmorrhages are now visible in the fundi. The urine, sp. gr. 1020, acid, contains a trace of blood.

On November 16 ordered sodium sulphocarbolate ʒss in camphor water every four hours.

During the next five days patient was critically ill with headache, vomiting of blood-stained liquid, motions increasingly blood-stained with some clots. Severe pains referred to chest and abdomen; pulse 140; the appearances of the hæmorrhagic extravasations unchanged.



November 22.—No vomiting now, slight improvement.

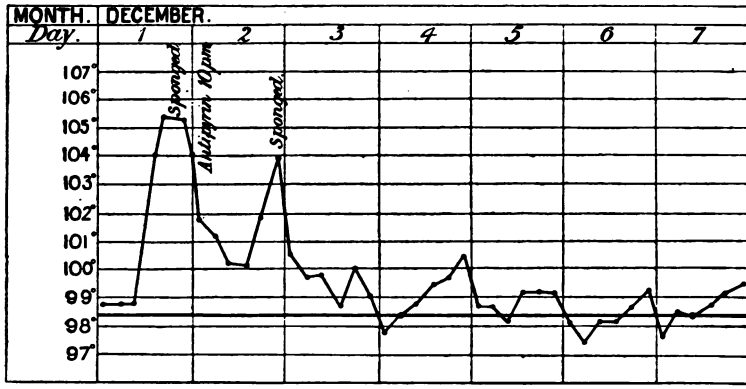
November 24.—Patient much better, pulse 108. Slight optic neuritis now observed, and a small hæmorrhage near the inner portion of the circumference of the left disc. Other hæmorrhages below the right disc as well as additional spots in the right fundus became visible, and the signs of optic neuritis increased. The area of præcordial dulness became somewhat extended, and the systolic murmur increasingly manifested at the apex. There were, however, signs of general improvement, and the hæmorrhagic spots began to fade away from the legs.

From November 27 the patient continued to improve.

On November 30 the pulse-rate was 100, the temperature nearly normal, and food was taken with appetite.

On December 1 and 2 there were rises of temperature to

105° F. and 104° F. on each day, but the subjective conditions continued good.



On December 6 there was great improvement, no new hæmorrhages observed, and the old ones were all fading. A pinch subsequently showed no sign of bruise.

On December 18 the spots and discolorations had all disappeared except one blue mark over the left tibia. The left optic disc continued somewhat swollen, and slight pigmentations marked the sites of the old hæmorrhages; the right disc seemed quite normal.

On December 21 the patient was discharged quite well.

The temperature changes are thus summarised. From nearly the normal on admission the temperature rose the next day to 103·8° F., and for three weeks presented a febrile type, with sometimes regular, sometimes erratic remissions. The maximum temperature was 105·2° on the sixteenth day after admission (see chart). The patient was sponged at intervals with tepid water when the temperature rose above 102° F.

It is to be noted that the illness commenced in this child with symptoms of a severe cold and cough, followed, ten days later, by the occurrence of severe hæmorrhages, by the appearance of abundant spots of purpura hæmorrhagica, and of the blebs of pemphigus with blood-stained contents. At this time the child, pale from much loss of blood and extremely weak, with quick pulse (124) and rapid shallow respirations (34 per minute), was in a febrile state, the

temperature rising rapidly to 103·8° F. with morning remissions. The signs seemed to point to some infective agency as a first cause. The evidence suggested to me the probability of this agency being the *materies morbi* of influenza. The early symptoms were consistent with this hypothesis, they occurred in an influenza epoch when several cases of the disease were under my care.

Hæmorrhages have been noted in a large number of cases of influenza. Koranyi has recorded the occurrence of epistaxis in more than 34 per cent. of the subjects of the disease in the Military Academy of Buda Pesth. In some cases narrated by other observers such hæmorrhage has been very profuse and threatening life. Bleeding from the gums and from the external ear has been noted. Hæmoptysis, hæmatemesis, and hæmorrhages from the bowels have frequently been observed, and metrorrhagia in an extreme degree has occurred in many women. Examples of fatal intracranial hæmorrhage in the course of influenza have been recorded by many observers. Purpura hæmorrhagica has been more rarely noted, but a case attended with fatal hæmorrhages into the brain, pericardium, and stomach has been recorded by Pick (cf. Althaus, *On Influenza*, London, Longmans, 1892, pp. 67 and 129).

The diagnosis was enforced upon me by the experience of a case which I observed in March, 1893. I was summoned into the country to see a gentleman aged thirty-seven, who presented signs of moderate fever and a limited pneumonia in the base of the right lung. There was no doubt that the case was one of influenza, the infection having occurred a few days previously in Paris. There were no signs of more than ordinary severity, but on the third day after my visit I was again summoned, to find the patient in a most critical state, blanched by copious hæmorrhages from the nose, mouth, and fauces; a large amount of blood was also passed from the bowels, and there was abundant hæmaturia. Small spots of purpura were scattered over the legs. I feared a rapidly fatal issue, but determined to try treatment by half-drachm doses of sodium sulphocarbolate every four hours. This treatment was continued for many weeks, the period of danger was tided over, and the patient made an excellent recovery.

Having had this experience I determined to treat the child, whose case I have detailed, on the same plan; I at once ordered half-drachm doses of sodium sulphocarbolate

every four hours, and the treatment was continued almost till the time she was discharged cured from the hospital. The results compare most favorably with those in other recorded cases.

Infectious purpura is well known to be very fatal. The cases of influenza attended with severe internal hæmorrhages (and the occurrence of double optic neuritis with hæmorrhages in the fundus oculi suggested in the child the imminence of cerebral involvement) have been, so far as I have examined the evidence, invariably fatal, and I regard this case as encouraging us to treat severe cases of influenza by sufficiently large doses of the sulphocarbolate of sodium.

XLIV.—*A case of Pancreatic Cyst with Diabetes: incision of Cyst: death a year after the operation: atrophy of the Pancreas: remarks on treatment of Pancreatic Cyst.* By T. CHURTON, M.D. *Read May* 25, 1894.

GEORGE A., æt. 35, an artisan, was admitted into the Leeds General Infirmary on November 28, 1892. On admission he was a rather spare man, 5 feet 5 inches in height; weight in health 9 st. 3 lbs., now 8 st. 3 lbs.; his dark brown hair is turning grey; many of his teeth are decayed. He complains of pain in back and abdomen, worse at night, and of intestinal rumbling. Temp. 97·4°. Some wasting of muscles. Great loss of energy of all kinds; slow in apprehension and reply. Appetite good; tongue furred on dorsum, edges clean, rather dry; flatulence, but no pain, after food; constipation; no hæmorrhoids; no jaundice now, but he states that four months ago he was jaundiced, and passed a gall-stone; gall-cyst not distended. At first sight the stomach seemed to be dilated, the epigastrium being markedly prominent; but closer examination showed that it was not dilated, but displaced, pushed forward by something behind it, so that the contents of the pyloric third could be made to splash by palpation. The area of resonance varied, and the transverse colon was clearly separated from the stomach by a dull area varying in width from 1 to 2 inches. The left hypochondrium was dull also. Urine, sp. gr. 1033; daily quantity not great, contained much sugar, but no acetone, diacetic acid, or albumen. The fæces were of palish colour, of normal consistence, not greasy; microscopically no fat crystals or needles could be found. The lips were not very markedly pale; the adipose tissue was not nearly all gone; he had only a slight cough, nothing could be found distinctly wrong in the lungs; the heart was normal in site and sounds; pulse rather feeble. There was no excessive sweating, and no rash on the skin.

Causation.—His family has not been a robust one. His father died at fifty-five from bronchitis, his mother at fifty-six also from bronchitis; a brother died at forty-four from some disease of the liver; a sister had died from some cause unknown to him. He himself was never very strong, but he has worked until recently and maintained a small family. His wife

has borne three children; all are alive and well; the eldest is fourteen, the youngest eight years old; his wife is well, and he has never had any venereal disease. Three years ago he began to have dyspepsia, possibly due to frequent disagreements with his comrades at work, which worried him, and occasionally caused loss of sleep. His house is healthy and his work is light, but dusty and sulphurous. He has never had any blow or injury of any kind on the abdomen. His wife had influenza six months ago; he has not, he believes, had that disease. He states, however, that he was at work up to six months ago, and that his present illness then commenced with shivering, nausea, and pain in the region of the stomach, which persisted for some days. He had not noticed that he passed any unusual quantity of urine until he came into the hospital; he was not at all troubled by thirst.

December 7.—Exploration with a fine needle in the eighth space in left mid-axillary line found fluid of a dirty olive colour, as though tinged with altered bile, but on the addition of nitric acid merely a brown colour was developed. The fluid had no marked odour; it did not coagulate spontaneously, nor on being heated; it became slightly turbid, as if a drop or two of milk had been added to it when heated after acidulation with acetic acid. Microscopically a few cells like frayed leucocytes were seen. The fæces were now found to be of normal brownish colour, of solid consistence, and not apparently containing fat or oil in excess. It is perhaps of some importance to mention that although the finest needle of a small exploring syringe was used for the puncture, a circumscribed peritonitis appeared to result from it; there was pain with tenderness for several days. When this inflammation had subsided he was transferred to my colleague, Mr. E. Ward, who, having concurred in the diagnosis of pancreatic cyst, opened it. Having made an incision in front, Mr. Ward drew off the fluid by a trocar, and then, having enlarged the opening in the cyst, passed his finger through the cavity to its posterior wall below the last rib, made an incision at that part for drainage, and then stitched up the incision in front. Dr. Arthur Clarkson, Demonstrator of Physiology in the Yorkshire College, kindly analysed the fluid, and reported as follows:—"Reaction slightly alkaline. Sp. gr. 1015. Colour dark, sanguineous. Deposit whitish, heavy, flocculent. Microscopically leucocytes and red blood-cells, the former in excess of the latter; some colourless plates of ill-formed or broken crystals, apparently not cholesterine.

Spectroscope: spectrum of methæmoglobin. Chemical testing showed presence of serum-albumin, peptone, blood, pus, and mucin. No sugar, no bile. Analysis for ferments: no trypsin, no fat-splitting nor milk-curdling ferments; a starch-converting (amylopsin) ferment is present." Possibly the last-mentioned ferment was derived from the leucocytes.

The patient returned to the medical ward on January 30, 1893. On January 20 it had been observed in the surgical ward that he passed only 58 oz. of urine, though he drank 120 oz. of fluid. Next day he passed 71 oz. of urine, and drank 110 oz. of fluid. On January 30 he passed 110 oz. of urine of sp. gr. 1038, free from acetone.

On February 8 fresh pancreatic extract was ordered for him, and he continued to take either this or Liq. Pancreaticus or half-cooked pancreas of sheep daily for the next ten months. Various kinds of diet were tried, including grapes, which are said to contain much lævulose, and to be, in moderate quantity, little if at all injurious. They seemed, however, to increase the quantity of urine and of sugar in the present case. He took a third part of a pound daily. The quantity of urine varied from 62 oz., the lowest, to 133 oz. daily; usually about 80 oz., rarely over 100. Sp. gr. usually 1035. Sugar passed daily from 1850 to 4000 grains. Acetone was first detected in the urine on February 16, but on February 19 he was found to have gained 2½ lbs. in weight during the week. Diarrhœa, from which he had suffered, had ceased after the colon had been washed out with warm water. Night sweats had been reduced by agaricin after failure of picrotoxine. He was up daily; had a good appetite. The purulent discharge from the wound had ceased.

On March 5 a fluid like clear water was collected from the sinus by means of a small test-tube strapped upon the skin below the orifice of the sinus. Possibly the sinus became thus infected. A little pus began to appear in the discharge from it. It was now observed that the fæces and the gases formed in the colon were very offensive. He remained in this condition for a month, when (on April 4) he was made an out-patient, his weight being then 8 st. 2 lbs.; pulse 68; temp. 97°—98°.

After a stay at the sea-side he was next seen on July 27. There was very little and only occasional discharge from the sinus. He was stronger and less pallid. He had taken Liq. Pancreaticus constantly, ℥ss after each meal. But on September 7, after a diet insufficient and poor, he was readmitted,

weaker and thinner. The urine now contained acetone and (some days later) diacetic acid. On the next day he observed a dark coloration of the toes, and on the 11th the following note was made:—"The dorsal surfaces of all the toes are covered with purpura. Over the last phalanges coalescence of spots gives a blackish appearance to the skin as of threatened gangrene; nails, tips, and under surfaces of the toes are normal. The posterior tibial arteries are normal. The rash is symmetrical, extending on both sides along the outer side of the little toe; on the right, however, mere dark spots or dots; on the left a brighter redness, disappearing for an instant on pressure. There is smarting of the toes and tingling of the insteps, which are also œdematous. Sensation little if at all impaired. Two days later there were low flat blebs on the middle toe of each foot, over the last joint and phalanx. Purpuric spots had appeared on the lower part of the right leg, on both knees and both elbows." (It may be stated here that the toes did not become gangrenous, but purpura persisted more or less to his death.)

The note of September 13 referring to the stomach reads thus:—"The stomach is evidently again pushed forward, so that a pint of water introduced into it can be felt to splash, and seems to project in the epigastrium. He has pain in the stomach, relieved by vomiting. The sinus discharges about an ounce and a half of pus daily." Suppuration seemed to be spreading. A dull area was found in the left side lying obliquely between the seventh and eleventh ribs; the upper limit being nearly horizontal from seventh to eight rib, the lower limit nearly parallel to the costal margin, and one inch from it. Two explorations failed to find pus (post mortem, however, a shallow abscess was found there). For two or three weeks he has been unable to extend the left thigh; when force is used to extend it he arches his spine. Mr. Ward again saw the patient, opened up the sinus, and liberated pus apparently from the far end of the wound.

On October 1 the projection in the epigastrium was gone. Subsequently pus was found behind the peritoneum as far down as Poupart's ligament. In the absence of Mr. Ward this abscess was opened up by Mr. Littlewood.

In November the urine became very offensive, much less in quantity, alkaline, free from acetone, and for a few days even free from sugar (14th to 17th inclusive).

In December the quantity of urine increased to 150 or more ounces; sp. gr. 1020.

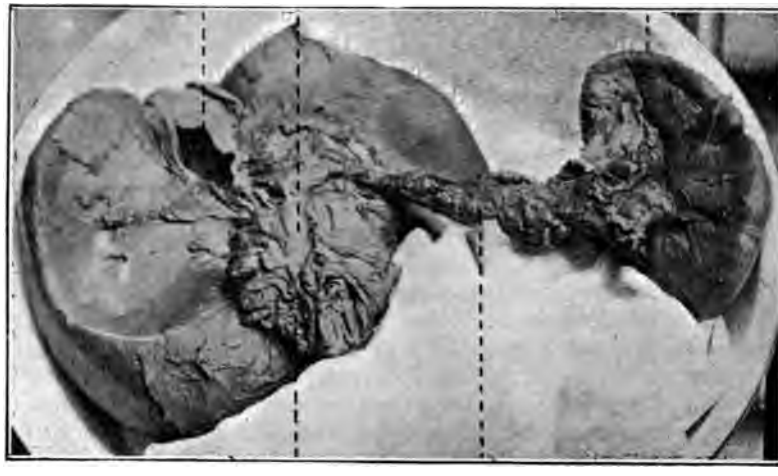
January 1, 1894.—A rather large quantity of watery discharge from the wound. This squeezed from the dressings reduced Fehling's solution, and gave nitrogen when treated with hypobromite; was believed by the clinical clerk to be urine.

January 7.—Becoming apathetic, refusing food; temperature, which had been for weeks between 97° and 98°, rose to 100°, but fell on the 10th to 97°. He died next day.

The post-mortem examination was made by Dr. Wardlop Griffith.

Owing to adhesions, the exact relation of the omentum, lesser sac of peritoneum, &c., could not, even with much care and patience, be demonstrated. The liver, duodenum, pancreas, and spleen were removed in one mass, and are shown

FIG. 28.



in the accompanying diagram taken from a photograph. Suppuration was traced behind the peritoneum; it had invaded both kidneys and ureters—the left ureter was blocked and had ruptured. The body of the pancreas consisted of merely

fibrous tissue and vessels. The head was a firm fibrous mass in which a small cavity, apparently the remains of the large cyst, was found.

On further dissecting the pancreas I found the orifice of the duct a quarter of an inch above the papilla. A probe passed readily for an inch. Slitting the duct with scissors, it was found to end abruptly at a thick fibrous wall of a cyst which had occupied the head of the pancreas. There was no calculus. Three branch ducts opening into the inch slit up could be traced for a quarter to half an inch, but the tissue to which they led was merely fibrous stroma; no gland-cells could be found. Dr. Trevelyan kindly searched in sections from various parts of the organ for gland tissue, but could find none. The head was converted into thick contracted cyst-wall. The body of the organ was composed merely of vessels and fibrous tissue.

The cyst seems to have been formed in the duct near its termination, but whether it was preceded by acute pancreatitis is uncertain; possibly the rigors, nausea, and epigastric pain, lasting for some days, six months before admission, may have been due to that disease. Dr. Lancereaux relates a case, mentioned in the *Lancet* of May 18, 1888, p. 995, in which violent epigastric pain preceded atrophy of the pancreas, the duct being narrowed at one part and obliterated at another, no calculi being present. It was supposed at the time, however, that in the case now under discussion the symptoms were due to the passage of a gall-stone, and post mortem the common duct was seen to be shortened, and several stones of large and small size were contained in the gall-bladder.

In an analysis of 100 cases of pancreatic disease in diabetes by Dr. R. T. Williamson in the *Medical Chronicle* for March, 1892, ten of them are described as being associated with cysts; cirrhotic and cystic pancreas, 1; cyst of pancreas with necrosis, 1; cystic disease, 3; marked atrophy with cystic dilatation of duct, 2; large cysts, 3. There are also ten cases classified as "transformation of the pancreas into a firm mass of fibrous tissue, pancreatic tissue being almost absent." The specimen now shown belongs to this or perhaps to the first class.

With respect to the operation, surgical opinions seemed to favour incision rather than mere aspiration. But if it be true that (1) the occurrence of glycosuria is a sign that the pancreas has become atrophied—since even if a fourth part of it remains (in animals) there is no diabetes,—and if, (2) that being so, there is no probability of prolonged life, even with

the aid of pancreas extracts, while (3) diabetic patients are more likely to become a prey to septic infection, as happened in the present case, aspiration, even if requiring repetition, would seem to be preferable. For although the cyst being very tense, fluid escaped from it through a very fine puncture aperture, there would, I suppose, have been no such leakage from a cyst flaccid after nearly complete evacuation. Indeed, one authority states that "pancreatic cysts usually recover after a single tapping." Cases have been reported, it is true, in which, after failure of aspiration, incision has been successfully practised, and in several other cases incision has been followed by recovery, but in none of the successful cases to which I have been able to refer does there appear to have been glycosuria.

Mr. Treves' case.—Man, 40, operation followed by suppuration and obliteration of cyst in three months. No mention of glycosuria. (*Lancet*, September 27, 1890, p. 655.)

Prof. Grube's case, related by Dr. Filipoff; operation followed by recovery in eighteen days. Glycosuria not mentioned. (*Lancet*, April 5, 1890, p. 767.)

Dr. Newton Pitt and Mr. Jacobson's case.—Man æt. 21; operation successful. No sugar mentioned. (*Brit. Med. Journ.*, June 13, 1891, p. 1284.)

Mr. Pearce Gould's cases.—(1) Woman, 24, operation successful; urine phosphatic, no sugar. (2) Woman, 39, operation successful in 1887, cancer found in sinus in 1890. No sugar in urine. (*Lancet*, August 8, 1891, p. 290.)

Dr. Savill's case.—Rupture of cyst. No sugar. (*Lancet*, September 19, 1891, p. 666.)

Mr. J. L. Thomas's case (Cardiff).—A child; recovery after aspiration. No sugar in urine. (*Brit. Med. Journ.*, November 11, 1893, p. 1077, and further information in reply to a private letter.)

Dr. Barnett's case.—Man æt. 24; traumatic origin; incision after three aspirations; recovery; glycosuria not mentioned. (*Supplement Brit. Med. Journ.*, January 20, 1894, p. 10, *extract from New Zealand Med. Journ.*)

Mr. Walshe's case.—Woman æt. 47; 6 months' burning pain and tenderness in epigastrium. A pint of pus with portions of the pancreas evacuated by incision. Patient left the hospital on the eleventh day, "fistulous track being well established." No further information. No mention of sugar. (*Supplement Brit. Med. Journ.*, p. 22, February 10, 1894, extracted from *Medical News* of December 30, 1893.)

In other cases by Krecke, Kocher, and Jordan Lloyd there was no glycosuria.

Even in cases where sugar is absent, the operation by incision is not without risk. Thus in Mr. Hulke's case, the lady æt. 47 died a few hours after the operation from shock. She had been long ill, but was not diabetic. (*Trans. Clin. Soc.*, and *Lancet*, December 3, 1892, p. 1273.)

Unless, therefore, there is evidence forthcoming that aspiration has failed in that its repetition is quickly and frequently necessary, or that it is often followed by peritonitis, or by suppuration in the cyst, or by shock exceeding that following anæsthetics and incision, it appears to be more worthy of selection as the method of treatment when diabetes is present.

XLV.—*On the use of Chlorine (?) in the treatment of chronic ulcers of the leg.* By E. Diver, M.D. *Read May* 25, 1894.

I WRITE of two aged widows. The younger is 65 years old, and she had a varicose ulcer on each leg, rather more than 2 inches long, and rather less than 2 inches broad, situated between the ankle and the calf. One had existed twenty-five years, and the other nearly twenty-eight; both secreted a copious thin discharge, and caused considerable suffering, with almost complete confinement to the house. The ulcer of shorter duration became well on the 23rd of January last, after eight weeks' treatment; and the other, by the same time, had become divided transversely into two by new tissue, and the area of these two considerably diminished.

Although the subsequent progress of this ulcer has been slow, this has, I think, been due, amongst other things, first to some ill-health of the patient after the other leg had got well, and second, to an accident on April 6 by striking the leg against a projecting piece of iron, which produced another ulcer lower down. This fresh ulcer is now getting well under the treatment herein referred to. A probable third cause is that the gas was sometimes used after keeping too long. I think it ought to be made shortly (say three or four hours) before use. Both the original ulcers, at intervals of a few weeks, used to bleed venous blood from two or three points on the lower margin.

When about to commence the line of treatment pursued, I found unexpectedly that I had no MnO_2 wherewith to make Cl. I therefore introduced into a large glass marmalade jar three or four drachms of potassium chlorate, and then poured a drachm or two of strong HCl thereon. This produced the gas I used, which is, I believe, in larger part Cl with some peroxide of Cl in mixture. It is like Cl, so far as I have observed, in its colour, and also in its bleaching and its odorous properties. If the gas be made in the same general way, but with *diluted* HCl and the *application of heat*, the so-called "euchlorine" would be produced. This, I believe, has a far larger proportion of peroxide. After having set the gas free in the manner shown, a disc of white paper is quickly put over the chemicals, and absorbent wool then introduced and firmly corked down. But before introducing the wool, I take

a piece of the size I need from a roll. Then I split it, and turn the split pieces back to back so as to increase the fleecy condition. After the wool has been in the jar for two, three, or even four hours, it should appear covered by a yellow or yellowish-green colour, which very rapidly, indeed almost instantly, disappears on withdrawal. The wool thus well charged is quickly placed over the ulcer, and instantly covered with gutta-percha tissue. The dressing was then kept in position by the patient according to her use and wont, and she was told she could proceed with her work as usual: which she did. The jar itself I have covered with brown paper, to prevent the action of sunlight, which might, perhaps, produce some further reaction.

On the application of the wool there was often no pain; but once or twice the patient, in answer to my inquiry, said there had been considerable "smarting" for an hour or so, and upon one occasion for several hours. The dressing was applied three times weekly, and sometimes four. On several occasions when I removed the wool, which, by-the-bye, for weeks I found soaked with discharge, the whole surface of the ulcer was a deep sea-green, which did not come off on dabbing with a bit of clean rag. At the next visit the colour was almost or quite gone. The mode of healing was partly by the opposite edges approaching each other, and partly by the growth of exceedingly fine granulations from every part of the floor of the ulcer except the margins; and when the granulations arose to above the skin level the margins looked deeply depressed. I thought it possible that this was due to the wool perhaps missing them. I took care, therefore, afterwards that the margins should be fully treated also, and I think with advantage. So much for the first case.

The *second case* is that of a laundress æt. 75, who came under treatment December 7 last. This poor woman, nearly twenty years ago, had been bitten by a cat, and the bite led to an ulcer which gradually became larger, until its annular form was completed some four years ago. The ulcer was situated from above the ankle to near the middle of the calf. The leg was swelled and red immediately above and also below the ulcer; the reddened surface above being fretted with tiny breaches of continuity; and the whole leg, with its deep excavation, had an aspect which completely justified the patient's complaint of continual misery. Her family loudly complained of the smell of the large sore, and the woman had not been out of her cottage for nine months, and then

only to a son's funeral. She preferred to sleep on the cold floor, which she said relieved the constant pain between the sore and the knee.

As in the former case, so in this, I gave no medicine, I prescribed no rest, nor did I direct any cleansing of the ulcer; but after removing the old wool I simply applied fresh all over the ulcerated surface, and then covered it with the gutta-percha tissue. The woman used then to tie a handkerchief round the dressing to keep all together. Before treatment the patient had for a time applied lard as a dressing, and before this zinc ointment. The whole ulcer had an ashy look, discharged a thin fluid in great abundance, and occasionally the lower margin at two or three points bled venous blood.

The first sign of improvement occurred after a few days' treatment, and consisted in a slight linear redness showing itself transversely to the leg in front upon the ashy floor of the ulcer. Granulations succeeded these short red lines, and became larger, being far bigger and more vigorous behind and at the sides than in front. The next sign appeared to me to be a slight diminution in the width of the ulcer at its narrowest part—*i. e.* at the front of the leg. Then a slight projection grew from the upper edge, as though an attempt were being made to meet a projecting bit of sound skin left in the course of ulceration of the lower margin; then a further development of the granulations at the outer part of the ulcer, until these reached the level of the skin, which occurred about the middle of January, some six weeks from the commencement of treatment. It is perhaps worth noting that two or three days before these granulations showed themselves so very distinctly, I had when dressing the leg, injected beneath the wool on that part of the ulcer, about two ounces of the gas from the jar by means of a glass female syringe; and I fancied the improvement might have been specially stimulated thereby. But on another occasion, on doing the like, I did not appear to get a quicker result: of this, however, I am uncertain.

On April 7 patient was admitted under my care to the Cottage Hospital, she having expressed a wish to go there. Here the ulcer was washed and dressed with the wool every day, and the woman was allowed to get up as usual. The patient, who is here in person, shows the present aspect of the ulcer. Since she has been at the Cottage Hospital her progress has, I think, been faster, and this rapidity has

been, I think, due to the daily dressing of the leg, and to the loss of that freedom which the patient not infrequently used for the purpose of removing the wool when she thought fit.

The ulcer will require still to be treated for some time; but the very great improvement already attained shows itself in the swelling of the limb being much reduced, the redness much less, the discharge greatly lessened, the area of the ulcer enormously diminished, while almost every part of what is left of it is up to or above the skin level.

The condition of these two poor women in December last is, I am well aware, by no means singular; but since there has followed in the wake of their somewhat novel treatment (which may also be available for other surgical maladies) an element of success, I have ventured briefly to record their cases.

XLVI.—*A mode of making Extension in Fractures of the Femur.* By RICHARD BARWELL. *Read April* 27, 1894.

THE splint which I now show to the Society was devised by me thirty-four years ago for making extension in hip disease, and was described in my work on *Diseases of the Joints.* I have since used it largely in all those forms of fracture of the thigh to which a straight position is applicable, and in these cases it is very valuable for the prevention of shortening. It consists of a Liston or Desault splint, long enough to reach from the axilla to four or five inches below the foot. Screwed to one of the surfaces at the upper end is a double bracket projecting about an inch, and supporting a pulley (*a*). To each prong of the fork at the lower end metal arms are attached, so fastened that they project in a direction contrary to the above-described bracket—they converge, and support between their contiguous ends a pulley (*b*), which is destined to lie, when the splint is applied, about four or more inches below the sole of the foot. Across the slot, where the two prongs separate, a little bar is fastened, which bears still a third pulley (*c*), merely intended to prevent friction. In order to use this appliance a long strip of plaster is attached to both sides of the leg from the knee downwards, so that it forms a loop below the sole: for greater security this is covered by circular strips. To the loop a piece of clock catgut is tied, which is to convey the extending force. To prevent the plaster galling the malleoli the laps are kept asunder by a wooden strut, slightly longer than the foot is broad.

The counter-extension is arranged by means of a perinæal band, which, when properly used, is not in reality open to the objections brought against it by some writers. In the first place let me point out that this device is, for fractured femur, most conveniently applied, and is better borne on the sound side, the material being a *woven* bandage, the tube of which is lightly stuffed with cotton wool for a length corresponding to the distance from the adductor longus tendon to the tuber ischii. The ends beyond the stuffing in either direction are to be firmly sewn together, so that the join lies on the ileum only a little above the great trochanter, and cannot be dragged up higher. Passed through the band at this point

is an ordinary 2½ or 3 inch broad bandage (where the laps cross they can be stitched together); one portion passes behind the loins and back, the other in front of the abdomen and lower part of the chest; they meet again, and are stitched

FIG. 29.

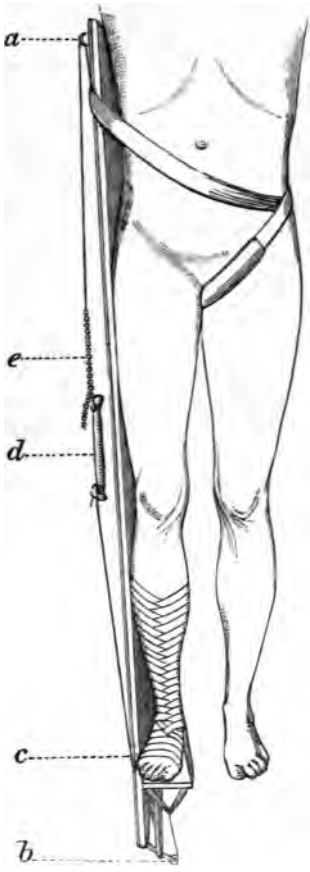
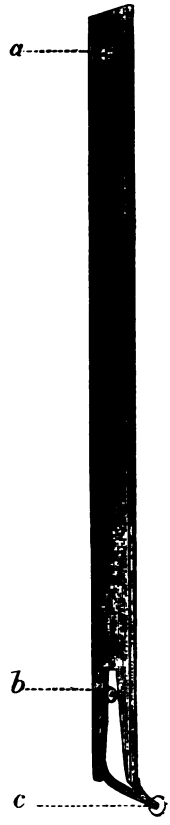


FIG. 30.



together outside the splint a few inches below the double bracket and pulley first described, and another piece of catgut is here tied. This catgut runs at first upward and passes round the upper pulley (*a*), which changes its course so that it afterwards passes downward. Meanwhile the piece of

catgut which was fastened to the loop of plaster under the sole passes first round the pulley below the foot (*b*), then over the pulley at the separation of the forks of the splint (*c*). The two ends of the catgut—that from the perinæal band and that from the foot—thus course towards each other on the outside of the splint; they do not, however, meet, for intercalated between the two is a solid india-rubber cord (*d*) of $\frac{3}{8}$ inch diameter, which, by a simple arrangement of a brass chain (*e*) attached to one of the catguts and steel hooks, can be kept at any degree of tension that may extend the injured limb to the same length as the other, either at once or in a few days as can best be borne. Although this splint will by virtue of the elastic force remain in position without extraneous aid, yet it is better to bind it by a few turns of a bandage to the thigh and leg, and to secure it to the trunk by a broad belt buckling in front. Any tendency to displacement by rotation is easily combated by sand-bags placed over the upper sheet.

The accompanying diagram will explain the fact that very little pressure falls upon the perinæum, because the band, which passes in front of and behind the body, meets the perinæal band at a somewhat acute angle, and by far the larger amount of pressure falls therefore on the ilium just above the trochanter, a part well able to bear any but excessive pressure. If, in the female, circumstances call for considerable cleanly precautions, the stuffed part of the band may be enveloped in thin mackintosh. On two occasions I have made the perinæal band of inch-wide webbing passed through a short length of india-rubber tube. This, again, should be covered by a fold or two of soft cotton material, which can be changed in a minute without disturbance whenever desirable.

From among the cases treated by this appliance I select but two as exemplifying its immediate and its later application.

Case 1.—Quite late on the night of 23rd February, 1893, I was requested to go at once to Mr. C. I found him to be twenty-eight years old, and having been dining, &c., rather too freely he was much excited, and very difficult to manage. His right femur was fractured very obliquely just above the middle, and the limb was much ecchymosed. All that could be done at that time was to apply temporary safeguards, and to render him as comfortable as possible. On the next day I adapted the above-described splint with what extension he

could bear, viz. 2 lbs. This was gradually increased by the 11th to 6 lbs., by the 15th to 12 lbs. during the day, and to 8 lbs. at night. The limb, which at first was an inch and three quarters short, showed at the latter date a little over a quarter of an inch of shortening. On 31st March, when plaster of Paris was applied, there was a further decrease of shortening. On the 11th December (last date of seeing him) he had perfect use of the limb, with only about an eighth of an inch doubtful shortening.

Case 2.—On 27th November, 1891, I saw P. G. P., æt. 14, who on the 7th of the same month had broken his thigh playing football. He had been treated by a long Liston splint, but without perinæal band, as it was said he could not bear it. I found the thigh broken in two places; the upper fracture was very oblique, and the upper point of the isolated fragment projected sharply against the deep surface of the skin. Measurement showed an inch and a quarter shortening of the injured limb. I reapplied the Liston splint with a perinæal band on the sound side.

December 13.—It happened that all my pulleys being in use I had to get a new set made, which took longer than usual. I applied the apparatus, however, at above date, the limb at the time being an inch and a quarter short. It soon showed, however, signs of increased length, and on the 2nd January was absolutely of the same length as the other.

The boy was treated after the usual period of splintage by a retentive appliance, and by the middle of the year he was walking without the least limp or sign of distortion, and a little later took a creditable part in lawn tennis tournaments; has since played cricket, &c. There is not the slightest shortening. This result, especially if the length of time before it was applied be considered, bears good testimony to the value and power of this mode of making extension.

CLINICAL CASES

DESCRIBED BY CARD.

*** Published in accordance with the Regulation relating to the exhibition of living specimens at the meetings of the Society, viz. that "each case shall be accompanied by a card containing a brief description of the points it illustrates, such card to be retained by the Secretary for publication or not in the *Transactions* at the discretion of the Council."

I.—*Paraplegia following Typhoid Fever.* By F. W. Mott, M.D. *Exhibited January* 26, 1894.

R. P., æt. 22, draughtsman, had typhoid fever eight years ago. Was ill two or three months; when convalescent found he was unable to walk or stand. Beyond a little inability to retain his water he had no affection of the sphincters. He had no girdle sensation. There is great exaggeration of all the superficial and deep reflexes in the lower extremities, and there is wasting, probably from disuse, as the muscles respond to Faradic current. The patient came to the hospital for an ingrowing toe-nail, and there are corns on all his toes. Whether these are trophic changes due to the paraplegia is uncertain. It is, however, remarkable that the great toe, which was swollen, red, and suppurating, caused him very little pain, nor did he complain of any painful sensation when the toe-nail was partly cut away. There is, however, no loss of sensation in the lower extremities.

II.—*Lesion of Pons, probably Thrombosis.* By F. W. Mott, M.D. *Exhibited January* 26, 1894.

HENRY W. R., æt. 36, travelling agent in Japan. Illness commenced six months ago. Whilst playing the piano he was seized with sudden faintness. He rose to get a drink of water, and found that he was unable to swallow or speak. He went to bed, and two days later walked to the hospital. He was admitted, and, as he was still unable to swallow, he was fed with a tube. At the end of three weeks he began to be able to swallow. He was treated by inunction. The face was paralysed, especially the left side, and the tongue to some extent. He improved greatly and returned to England. He now has evident signs of sclerosis in his pyramidal tracts, as shown by his walk and the exaggerated deep reflexes. There is slow and difficult articulation, and evidence of paralysis of left side of face involving the occipito-frontalis.

III.—*Muscular Dystrophy.* By Frank Penrose, M.D. *Exhibited January* 26, 1894.

THE patient is a boy æt. 21. He had measles and whooping-cough in childhood, and when twelve years of age some feverish illness, which lasted about three weeks, and which he attributes to cold and exposure. He was born in New York, and for the first sixteen years of his life travelled about the States in a caravan.

The details of the family history are not very definite, but he is quite certain that none of his relations have ever suffered from any form of wasting of muscles.

At the age of sixteen years he came to this country, and about eight months later the present illness began with weakness in the back. Three months later his arms began to get weak and to waste, and two years later the lower limbs began to be similarly affected. For the last two years his condition has been practically stationary. He attributes his illness to having been much exposed to wet, &c., for three years of his life from twelve to fifteen.

His condition almost exactly corresponds to the "facio-scapulo-humeral" type of Landouzy-Dejérine.

The electrical reactions show merely diminution to both the Galvanic and Faradic currents corresponding to the wasting of the muscles. There has never been any reaction of degeneration.

With the exception that his knee-jerks are absent, and that he is very ticklish about the soles of his feet and over his back, he shows no alteration in sensation or other nervous change.

IV.—*A case of Muscular Dystrophy.* By W. Hale White, M.D. *Exhibited May* 27, 1894.

JAMES G. C., æt. 22, admitted into Stephen Ward, Guy's Hospital, March 3, 1894. Clinical clerk, Mr. C. D. Edwards. The history of the family was traced fairly completely as far back as, and collaterally from, the grandparents on both sides without anything of importance being found. The patient was quite well till he was seven years old when he caught a cold, and as he could not shake this off he took to his bed. He was in bed fourteen days, and a few days after he got up his friends noticed that he walked on his toes. Fourteen days after this he could not stand, and then the arms became affected, so that he could only feed himself with difficulty. Gradually his muscles became small, and he was laid up as helpless for three or three and a half years, slowly getting more and more helpless. Then his trouble ceased, and he improved in strength and began to grow. There have been no sensory defects nor any interference with the sphincters.

On admission height about 4 feet 6 inches, weight 3 st. 13 lbs. Is very wasted.

Feet.—Walks with great difficulty, the feet being turned out nearly at a right angle. The malleoli, os calcis, and head of the astragalus are marked bony points with the skin tight over them and reddened from pressure. The foot is everted and extended. A line continued down from the internal malleolus passes 1½ inches internal to the scaphoid. Metatarso-phalangeal joints extended and cannot be flexed.

Knees.—Over the bony prominences the skin is reddened,

and owing to the wasting of the muscles it is, when the knees are extended, thrown into deep crescentic folds in front of the knee, which disappear on flexion.

Wrists.—Flexed at right angles, and cannot be moved out of this position except to be flexed a little more. The interphalangeal joints are all semiflexed, and can be more fully flexed but not extended. The skin over all the bony prominences, which are very marked, is red and glossy.

Vertebral column.—There is lateral curvature with the convexity to the right, and the muscles are very weak, for when he tries to straighten his back he does so entirely from the hips.

Face.—Small. Bony prominences very marked, lower jaw drawn down a little.

Muscles.—Face: on both sides the zygomatici, levator labii superioris, levator labii superioris alæque nasi, and levator anguli oris are wasted; the upper lip cannot be drawn up; the angles of the mouth are drawn out, but hardly, if at all, up in smiling. Orbicularis oris: this is not wasted, and acts well; he can consequently close his mouth, but it is usually held open because of the drawing down of the lower lip from the contraction following upon wasting of the depressors of it and the lower jaw. Buccinators: fair but somewhat wasted. Temporals and masseters fairly developed; the jaw can be closed well. Pterygoids: the lateral movement of the lower jaw is good, but it cannot be protruded far. Tongue, movements good, not atrophied. Palate, movements good. Occipito-frontalis very weak; he can hardly wrinkle his forehead at all. Corrugator supercilii very weak on both sides. Orbicularis palpebrarum and levator palpebræ superioris: these muscles on both sides seem quite healthy. Muscles of eyeball seem perfectly normal.

Neck.—Muscles generally well developed. Sterno-mastoids: these are rather small, but they act well. Platysma: this is very well developed on both sides.

Shoulder.—Deltoid on both sides distinctly small and atrophied, especially the clavicular part, which is very wasted. The muscular fibres springing from the acromial process are especially wasted. Supra-spinati: both are somewhat wasted. Infra-spinati: both are large and hard, they stand out in marked contrast to the rest of the muscles. Trapezius: on both sides the upper and lower portions have almost entirely disappeared, but the middle portion is moderately developed. Pectoralis major: on both sides the upper part is

DESCRIPTION OF PLATES IV AND V,

To illustrate Dr. W. Hale White's Case of Muscular Dystrophy.

These plates show the atrophy of the muscles and most of the other points mentioned in the text.

Photograph and Collotype by Danielsson & Co.

Photogravure and Collotype by Davidsson & Co.

fairly developed, but the sternal parts are much wasted. Latissimus dorsi: on both sides there is hardly any sign of the lower part of this muscle, but the upper part is fairly developed. Levator anguli scapulæ: both are wasted considerably. Serratus magnus: there is no trace of it on either side. Rhomboids and teres major fair on both sides.

Arm.—The biceps and other muscles of the forearm, especially the triceps, are much wasted on both sides. There is good movement of the shoulder and elbow joints.

Forearm.—Much wasting of all the muscles, especially the extensors, which have almost entirely gone. There is slight power of supination, no power of pronation.

Hand.—Thenar and hypothenar eminences much wasted, as also are the dorsal interossei, but the thumb and fingers can be fairly abducted and adducted.

Spine.—The muscles here are very much atrophied.

Thorax.—Much wasting of the intercostals. The respiration is almost entirely abdominal.

Abdomen.—The muscles are all well developed, and act strongly.

Thigh and hip.—The muscles of the hip and upper part of the thigh are well developed and strong.

Legs.—Extensors and peronei very much wasted. The flexors are wasted, but to a less extent.

Feet.—The muscles of the soles of the feet and the extensor brevis digitorum are very much atrophied. The knee, plantar, and epigastric reflexes are all present.

The chief points of interest in this case are—

(1) The absence of any family history of muscular atrophy.

(2) The fact that his illness, which is called a cold, and for which he was in bed, seems to have determined the onset of the atrophy.

(3) It shows very well the combination of types.

(4) The commencement in the legs shows its relationship to pseudo-hypertrophic paralysis.

(5) But later the facio-scapulo-humeral type was added.

(6) The relationship to pseudo-hypertrophic paralysis, and—through the wasting of the scapular muscles—to the juvenile form of muscular atrophy, may explain the onset at an unusually early age.

(7) The most interesting of the rarer atrophies that it illustrates are those of the deltoid, the forearm, the hands, and the occipito-frontalis.

(8) It shows very well the frequency with which the

infra-spinatus is particularly large, and the lower parts of the pectoralis major and latissimus dorsi are particularly atrophied.

(9) The orbicularis oris is particularly well developed.

(10) If the disease is to be regarded as entirely muscular, the light weight, short stature, and smallness of the bones may be explained on the assumption that one of the chief functions of the bones is to act as an attachment for the muscles; and if, therefore, in childhood it comes to pass that there are no active muscles attached to the bones, they cease to grow.

(11) This case illustrates the well-known but inexplicable fact that the larynx, tongue, pharynx, and ocular muscles are unaffected.

V.—*Three cases of Pseudo-hypertrophic Paralysis.* By James Taylor, M.D. *Exhibited November* 24, 1893.

I. CASE of pseudo-hypertrophic paralysis in a man æt. 25. He was perfectly well until he was eighteen, had been an amateur athlete and the occasional winner of prizes for running and jumping. He has become gradually weaker since the commencement of his illness. He now shows the characteristic gait, and he has much difficulty in rising from the sitting posture. His calves are large, his thighs wasted. There is great wasting of the pectoralis major and latissimus dorsi, distinct enlargement of the infra-spinatus. There is also fulness and a peculiar firmness in the first dorsal interosseous muscle on each side, believed to be of the nature of pseudo-hypertrophy. The tongue also is large. There is no history of similar affection in ancestors or relations.

2 and 3. Two cases of the same disease, but of the atrophic form, in brothers æt. 17 and 15. They were shown at this Society three years ago, and are now brought forward with the view of exhibiting the slow but gradual progress of the malady. There is no marked hypertrophy in any muscle. The gait is characteristic, and there is the usual difficulty in rising and in going upstairs. The muscles chiefly wasted are the pectoralis major and latissimus dorsi, the muscles about the scapula (although the infra-spinatus is proportion-

ally large and hard), and the thigh muscles. Except in the infra-spinatus there is no muscle which shows even a suspicion of pseudo-hypertrophy. The face is not affected in either brother. There are five others living in the same family. None of them show a similar condition, and no history of the condition is to be obtained in any relatives.

VI.—*Two cases of Pseudo-hypertrophic Paralysis in members of the same family.* By FRANCIS HAWKINS, M.B. *Exhibited November* 24, 1893.

CASE 1.—Boy æt. 8, a full-term child, who was unable to walk till the age of three years, when it was noticed that his back was bent inwards and the chest thrown out. At the age of five he walked with great difficulty. The speech is thick and somewhat inarticulate. The face is full, and there is want of expression. Lordosis is well marked, and the patient stands with his feet apart. The calf muscles are much hypertrophied, and measure 10¼ inches in circumference. The glutei are also large, and the infra-spinatus muscles appear much hypertrophied. The deltoids and triceps are also somewhat enlarged, while the pectorals are atrophied. The knee-jerks are absent, and the patient on rising from the ground "climbs up his legs," as is so typical of this disease.

CASE 2.—Boy, æt. 11 (brother of the previous case), could not walk until he was three years of age. The previous history of this case I am unable to obtain, but the patient shows a marked contrast to his brother, for he is not only unable to walk but cannot stand. The calf muscles as also the glutei are atrophied, although very firm; the pectorals too are atrophied, and the patient cannot grasp. The infra-spinous muscles are, however, much hypertrophied, and there is some thickening of the deltoids. The knee reflexes are absent, but the plantar, cremasteric and abdominal are present.

The only history of any disease in the family is that the grandfather and uncle (on father's side) suffered from fits.

Remarks.—The two cases, while of interest as being brothers, are, I think, of greater interest in the contrast they present, the former and younger brother exhibiting the well-

marked features of this disease, the latter showing a condition less familiar—the atrophic form.

VII.—*Peripheral Neuritis or Anterior Polio-myelitis?* By Walter Carr, M.D. *Exhibited April* 27, 1894.

A BOY æt. 11 years. Illness began in October or November, 1893, with pain and tingling in hands and feet; after a few weeks the pain became so severe that he remained in bed and was unable to sleep, but his general health continued very good throughout.

No history whatever of rheumatism, diphtheria, influenza, or of any acute specific disease, nor were any cases known in the neighbourhood at the time.

After lasting about two months the pain passed off, but the boy then found he had lost the use of his right arm, and soon noticed the peculiar condition of his hands. The arm quickly recovered, but the hands have remained in much the same condition since he was first seen on February 7.

He now has complete paralysis and wasting of the interossei, lumbricales, and of the thenar and hypothenar muscles on both sides; the latter give no electrical reactions, the interossei show the reaction of degeneration. In the feet also there appears to be paralysis of the interossei and wasting of the plantar muscles. Other muscles react normally, but there is perhaps some slight wasting of the right supra-spinatus and infra-spinatus and of the latissimus dorsi on each side. Sensation normal. No tenderness of nerve-trunks. Knee-jerks brisk. No trophic changes of the skin or nails of the hands or feet.

VIII.—*A case of Complete Aphasia with Right Hemiplegia from cerebral embolism in a case of mitral stenosis. Complete recovery from the hemiplegia with persistence of the aphasia.* By A. E. Sansom, M.D. *Exhibited February* 23, 1894.

ELLEN P., æt. 22, was admitted under my care at the London Hospital on April 24, 1893, for a sudden loss of voice and speech, attributed to a fright a week previously.

There was nothing notable as regards family history. The patient had suffered from measles and scarlatina in childhood, but had had no obvious symptoms of rheumatism. She was pale and anæmic, but of very good general nutrition, and all the organs seemed fairly healthy with the exceptions to be noticed.

Vocal sounds were uttered sufficiently loudly, but there was no intelligible speech. The vocal cords were observed by the laryngoscope to be rather anæmic, but they approximated well in attempted phonation; there was no paralysis. The tongue was protruded quite straight, but there was a slight paralysis of the facial muscles on the right side, chiefly the lower muscles, but the right orbicularis palpebrarum was weaker than its fellow. There were also paresis of right arm and leg, and exaggerated knee-reflexes with ankle-clonus on the right side. Aphasia was absolute; she recognised her name by a nod, and evidently understood all questions, but could neither speak nor write.

A presystolic thrill was felt at the apex, and a typical presystolic murmur was heard. The apex-beat was below the normal; the percussion outline showed it to be rather more than three and a half inches from the mid-sternal line, and two inches below the nipple. The pulmonic second sound was accentuated. Treatment was by bromide of ammonium with tinct. valerian, and subsequently small doses of arsenic.

On May 18, twenty-four days after admission, the grasp-power in the right hand became much greater.

On May 29 she could copy print and writing, could write down figures 5 and 25 when told to do so, but could write nothing of her own accord. When asked to write her name, she tried to do so, but then referred to a book in which she knew her name to be written, and copied the letters. When told to touch her nose she did so at once.

June 14.—Grasp of both hands as tested by dynamometer right 60 kilos., left 65 kilos.; no notable weakness of right side. Walks well.

June 24.—Powers of movement practically recovered. Speech limited to "yes" or "no" (indistinctly). She is said to have said "nurse," but not when told to repeat the word. All else quite unintelligible. There was steady gain of nutrition, the weight increasing from 6 st. 6 lbs. to 7 st. 3 lbs. before her discharge from hospital.

IX.—*A case of Hysteria in which the breathing is almost entirely diaphragmatic.* By JAMES CALVERT, M.D. *Exhibited February* 23, 1894.

JESSIE H., æt. 25, single, always delicate, no serious illnesses except measles when a child. During the last ten years has suffered from "indigestion" and "rumbling" in the abdomen after meals.

In 1889 she was twice in the London Hospital for hysteria and borborygmi; on each occasion she derived great benefit from rest in bed, Galvanism, and strapping the abdomen, followed by a light plaster-of-Paris bandage. Dr. Schorstein, the Medical Registrar of the London Hospital, from whom I received these particulars, adds that no note was made about any abnormality of breathing.

Three years ago she vomited, on two occasions, about half a pint of blood, and about this time she had acute pain at the epigastric region and sickness after food.

In October, 1893, she was an in-patient under my care at the Royal Free Hospital. Since that time she has been attending at intervals as an out-patient.

Present condition.—She is thin, with dark complexion and languid expression. The stomach resonance is sometimes enlarged, sometimes natural, and loud borborygmi are heard over it. The breathing is almost entirely abdominal, the movements of the diaphragm being unduly vigorous. The chest-wall moves very slightly; it sinks during inspiration and rises during expiration, so that a measurement round it, taken one inch above the nipples, is a quarter of an inch less at the end of inspiration than at the end of expiration: this difference is increased when attention paid to the patient increases the number and depth of her respirations (respirations vary from 18 to 36). Below the level of the nipples the difference in measurement is less marked but still distinct. This movement of the chest-wall seems to be due entirely to the varying atmospheric pressure within the lungs. The vocal cords separate on expiration and approach on inspiration; thus their movements preserve the usual relation to the movements of the chest-wall, but reverse the usual relation to the ingress and egress of air. There is no paralysis of the larynx; voice and cough are perfect. Motion, sensation,

and reflexes are normal. During sleep the breathing becomes quite natural in character.

Whilst she was under my care last year a single washing out of the stomach greatly improved her. The process was unpleasant, and a few applications of the battery nearly cured her, but both forms of treatment were suspended because she said she would rather leave the hospital than submit herself to either.

X.—*Cases of*—1. *Traumatic Cephalhydrocele.* 2. *Meningocele: natural cure.* 3. *Ankylosis of Spine: trophic changes in foot.* By STEPHEN PAGET. *Exhibited November* 24, 1893.

I. A CASE of traumatic cephalhydrocele of the right parietal region, in a child 14 months old, following a severe blow on that side of the head when the child was six months old. There was a long transverse gap in the upper part of the right parietal bone, with a hard zigzag edge, occupied by a soft fluid swelling which was slightly raised and had well-marked pulsation and impulse. A small plate of bone could be felt beneath the posterior angle of the gap. The gap seemed to be slowly getting larger. Mr. Paget also showed a sketch from another case, where a similar transverse gap in the right parietal bone, wide open at birth, had healed by the time the child was three years old.

2. A case of natural cure of a meningocele in a young man. At birth the swelling had been "the size of a large hen's egg." At one year old there had been a slow discharge of fluid from a small opening in it, and since then the swelling had slowly shrunk. There was now, at the site of the posterior fontanelle, a soft, puckered, flattish growth, one inch in diameter, and retracted at its centre. The skin covering it was loose, wrinkled, and hairless. Pain was felt if the growth was gently drawn outward. There was no opening now to be felt between the growth and the interior of the skull, nor did the growth ever alter in size or in consistence; but the patient would not let it be removed.

3. A case of ankylosis of the spine. The patient, æt. 20, small and young for his age, had a severe blow on the back of his neck at eight years old. For six weeks he was in

hospital, and for a year and a half he wore a plaster jacket with a jury-mast, which he says was never once taken off during that period. His back has been stiff ever since. The whole of the cervical and dorsal spine is rigidly fixed; he can only move his head one inch in any direction, and the dorsal vertebræ seem wholly devoid of movement, so that he is compelled to sleep sitting up in bed.

The respiration is mostly abdominal, and the movement of the ribs is very slight. The head is erect, drawn back; the chest thrown forward, the sternum slanted forward; there is extreme lordosis; no angular curvature; a very slight lateral curvature about the lower dorsal spine, concave to left.

He has also marked thickening of the soft tissues of the right foot, most marked around the middle tarsal joint. This swelling has been treated for many months by rest and fixation of the foot in plaster; there is no tenderness, no pain, no sign of caries; the foot is always much colder than the opposite foot; no blushing, no marked œdema.

There is no history of tuberculosis in his family. He has never had any pain or stiffness of any other joints.

XI.—*A case of Multiple Cutaneous Fibrous Nodules associated with rheumatism.* By W. Cayley, M.D. *Exhibited May* 27, 1894.

Wm. F., æt. 12, was admitted into the Middlesex Hospital on March 24, 1894.

Neither his parents nor his grandparents, nor, as far as was known, any of his relations had suffered from rheumatism or gout, with the exception of a sister who had on one occasion been confined to bed for three days with slight rheumatism.

He himself had generally enjoyed good health, but three years ago had had bronchitis; was never known to have suffered from rheumatism.

At the latter end of December 1893, he went to see a football match on a cold foggy day. On his return home his hands were swollen, painful, and of a reddish-purple hue, and the joints stiff. The fingers remained swollen, and on January 3 he consulted a medical practitioner, his mother thinking he was suffering from chilblains. The general swelling gradually subsided, and at the same time small nodules made their

DESCRIPTION OF PLATE VI,

To illustrate Dr. Cayley's Case of Cutaneous Fibrous Nodules associated with Rheumatism.

Shows the somewhat livid congested skin of the hand, and the rigid contraction of the fingers, together with the cutaneous nodules.

E. Burgess del. et lith.

appearance; after this the fingers gradually became contracted, so that he could not extend them. His right elbow became stiff and painful. There was no disturbance of the general health.

On admission, the patient was a healthy-looking boy, well nourished, with a fresh complexion; both hands were a little swollen, and the skin somewhat reddened. The fingers were rigidly flexed, especially the last two joints, and any attempt at forcible extension caused great pain. This flexion appeared due to contraction of the palmar fascia or sheaths of the tendons, and not to any affection of the joints. Scattered over both the hands, chiefly on the phalanges, but also on the dorsum and palm, were numerous nodules, varying in size from a millet-seed to a pea, of a somewhat translucent appearance, and looking almost like vesicles, but of a dense solid consistence. They were situated in the skin. Besides these cutaneous nodules there was great thickening of the structures beneath the skin on the palmar aspect of the phalanges, with nodular thickenings beneath the skin of the right thumb.

A somewhat similar nodule was present in the skin of the neck, in front of the centre of the thyroid cartilage, and one in the scalp, in the occipital region.

Both wrist-joints were somewhat swollen and painful, and the right elbow-joint was also swollen, and the ends of the bones appeared somewhat thickened; the joint could not be completely extended, and the movements of pronation and supination were impaired. The glands in the right axilla were a little enlarged.

There was a soft systolic murmur audible over the cardiac region, most distinct at the base. The urine was normal.

One of the nodules on the thumb was excised and submitted to microscopical examination; it was found to consist of wavy bands of nucleated fibrous tissue.

This case has a close resemblance to those described and figured by Dr. Radcliffe Crocker in the *British Journal for Dermatology* for January, 1894. Dr. Crocker gave the affection the name of erythema elevatum diutinum. Dr. Judson Bury has also figured a similar case in the *Illustrated Medical News*, May 18, 1889. All these cases were girls; in none of them were the deeper structures, as fasciæ and joints, involved.

In this case the nodules had all the characters of rheumatic fibrous nodules, except that they were situated in the skin as well as in the fasciæ.

The drawing from which the accompanying plate is taken is in the museum of the Royal College of Surgeons.

XII.—*Subcutaneous Nodules in an adult.* By SIDNEY PHILLIPS, M.D. *Exhibited January* 27, 1894.

DR. Sidney Phillips showed a male æt. 41; he had swelling and pain in joints four years ago, and again in winter 1892–3. In November, 1893, he had swelling and pain in both wrists and ankles, and in some of the joints of the hand; a month later he had an elastic, nearly circular, soft swelling over the upper end of the ulna, about one inch below the joint, and a second nodule the size of a pea in a similar position on the left side, and two weeks later a third larger nodule developed close to the second. There was no history of rheumatic fever or of syphilis, and no evidence of endocarditis or other heart affection. The nodules did not involve the skin, and appeared to be fixed to the periosteum. They were now subsiding, as well as the joint swelling, under treatment by salicylates and quinine.

XIII.—*Morphœa of the Fifth Nerve.* By BALMANNO SQUIRE, M.B. *Exhibited October* 27, 1893.

MAN æt. 33. Duration of disease eight months.

Disease is limited to right side (only) of the head.

Was first noticed on the forehead.

The patches, which are placed close to the mesian line, extend (in the form of a band) from the orbit to the "crown" of the head.

They correspond roughly to the area of distribution of the supra-orbital nerve.

The patch is abruptly defined, especially towards the mesian line.

Its colour, especially on the forehead, is a distinct bluish hue.

The affected skin is considerably thickened, and at its scalp portion is also œdematous.

There is none of the so-called "old ivory" appearance about it, and there are no teleangiectases, nor lilac border, nor red border, nor pigmented border (such as, one or the other, are often present in morphœa).

Some authorities hold that any hitherto known treatment is useless in morphœa, and that irritating the patch by any means only makes it worse (more thickened).

However, in this case I have irritated the patch extremely over and over again with strong applications, and this treatment has been followed by very unquestionable, nay, very considerable improvement.

XIV.—*A case of Myxœdema after Thyroid Treatment.* By Arthur T. Davies, M.D. *Exhibited February 23, 1894.*

ALICE A., æt. 48. This case I exhibited at a meeting of this Society on February 25, 1892, when she presented the typical aspect of myxœdema. Her condition is fully described in vol. xxv of the Society's *Transactions*. Having first ascertained her weight to be 14 st. 9 lbs. 12 oz. on June 13, 1892, I commenced injecting her on the interscapular region with ♏xv of Brady and Martin's thyroid extract, and she received twelve injections in seven weeks whilst an in-patient. Within ten days of the commencement of treatment she began to improve, and at the end of this interval there was marked diminution in the œdema, which was proved by the fact that she lost 2 lbs. 12 oz. in this period, her weight falling to 14 st. 7 lbs. on June 23. On July 7, concomitant with the steady improvement in her aspect, she began to feel warmer and to perspire. On July 31, 1892, she was discharged as an in-patient, and her weight was 14 st. 6 lbs. 4 oz. The injections were, however, still carried on till September 8, 1892. Her friends had much difficulty in recognising her altered appearance. On October 20, 1892, seven weeks after the cessation of treatment, I noted a slight return of her former symptoms, and especially the facial œdema, and these increased gradually until

November 28, 1892, when I began giving her White's thyroid powders once a day; under these she again greatly improved, and lost weight steadily. On March 20, 1893, I substituted the thyroid tabloids for the powders, giving one a day, and these she continued taking till August 24, 1893; they were then discontinued till October 23, during which period she again relapsed and gained weight. She was again put on the tabloids, and has greatly improved again up to the present time.

XV.—*Cancrum Oris after Typhoid Fever: recovery.* By FREDERICK TAYLOR, M.D. *Exhibited October* 27, 1893.

L. B., a girl æt. 11, was admitted into Guy's Hospital on July 24, 1893, on the twelfth day of an attack of typhoid fever. She had been irritable, drowsy, and delirious, with severe diarrhœa at first, and then occasional loose motions.

On the day of admission the temperature was 104°, but afterwards continued to be about 103°. There were only a few rose spots; the spleen was enlarged and tender, and there were râles at the bases of both lungs.

Thenceforward she had a severe attack of typhoid fever with a still more severe relapse, which commenced on the twenty-ninth day of the illness, but was not separated from the first illness by any single day of apyrexia. The relapse terminated on its nineteenth day, the forty-eighth day of the disease, August 29. On the following day a large swelling was noticed on the right cheek, and was attributed to a painful carious tooth. The temperature rose that evening to 102°, and oscillated irregularly between 98° and 102° on the five succeeding days. The offending tooth, a temporary molar in the right upper jaw, was found to be loose on September 1, and it was removed, giving exit to some offensive pus. She was now, at the end of her prolonged illness, in a very prostrate condition, with a small pulse of 108 to 124, and she was wretchedly emaciated. The cheek continued to swell, and the inner surface sloughed.

On September 3 a 10 per cent. solution of carbolic acid

in glycerine was applied every half-hour, but the sloughing continued, and the hard infiltration of the cheek extended.

On September 5 carboluria was present, and the applications were made hourly. The angle of the mouth was this day of a dusky colour. On the 6th it was distinctly gangrenous. The strength of the patient was, however, maintained, and on the two following days there was no extension of the sloughing at the angle of the mouth.

On August 9, under an anæsthetic, the sloughs were removed from the interior of the cheek, and fuming nitric acid was freely applied. There was scarcely any subsequent pain, and the patient slowly recovered. The degree of emaciation attained is shown by the fact that on September 18 she weighed only 31 lbs., being eleven years old.

The angle of the mouth gradually contracted, the sloughing tissues separated rather slowly, and for a long time there was a little opaque grey discharge. When exhibited the mouth was drawn to the right by the contraction of the right cheek; at the right angle of the mouth the lips did not meet, but presented an oval or pear-shaped aperture through which the teeth could be seen; and the teeth could only be separated about one tenth of an inch.

It is interesting to note that she had from the day of admission, July 24, a pill containing one grain of carbolic acid every four hours, and that these were continued until August 20, when she had carboluria.

XVI.—*Black Tongue.* By Frederic Eve. *Exhibited April* 27, 1894.

GEORGE G., æt. 63, noticed that the centre of his tongue had assumed a black colour two or three months ago. There was slight soreness of the part. The tongue exhibits the typical appearances of black tongue. At the centre of the dorsum just in front of the circumvallate papillæ is a patch the size of a crown piece, over which the papillæ are long and hair-like, and stained of a brown-black colour. The tips of the papillæ are more deeply stained than the lower parts. The patch has a resemblance to the fur of an animal. There is no induration of the submucous tissue, nor

alteration of the consistence of the part. He gave up smoking for a time, but there was no change in the colour of the patch.

Bacteriological examination of the fur throws no light on the cause of the discolorations. Cultures on glucosine and agar and plate cultivations on gelatine consisted chiefly of two organisms.

1. An opaque, white, waxy-looking growth on agar, composed of thick bacilli, relatively short and forming long threads; perhaps one of the groups included under the name of *Leptothrix*.

2. A delicate short bacillus liquefying gelatine; the cultures both on it and on agar were of a deep orange-yellow, like the colour of *Staph. aureus*. No moulds grew.

The patch of fur was scraped, and its base burnt with the thermo-cautery, but it returned in about fourteen days.

I am indebted to Dr. T. H. Dickson for this case.

XVII.—*Result of Thoracoplasty.* By A. Pearce Gould, M.S. *Exhibited January* 26, 1894.

THE patient, who is now sixteen years of age, came under my care at the Royal Chest Hospital in January, 1887, with a fistulous empyema of the left side of two years' standing. The liver was enlarged, and the urine contained one third of albumen. The sinuses were dilated and the cavity drained, but after two months it was evident that no material improvement was to be hoped for from this. In March, 1887, thoracoplasty was done, and the ribs from the second to the sixth rib inclusive were removed for the whole extent of the cavity. The wound and the pleural cavity healed, the albumen disappeared from the urine, and the liver shrank to its normal size. The boy has grown considerably, but is able to do only very light work. The very great deformity of the chest is well shown in the accompanying figures 31 and 32.

FIG. 32.

FIG. 31.

The result of thoracoplasty.

XVIII.—*Large Apical Cavity: treatment by a capacious form of carbolic respirator: quiescence.* By W. Wilberforce Smith. *Exhibited February* 23, 1894.

W. D., æt. 25, is a merchant. His case is one of tuberculosis of the lungs taking a favorable course, and is shown only to illustrate a point in treatment. His maternal grandmother died of phthisis. In May, 1892, he was accepted for life insurance. The following June, twenty months ago, he experienced a chill and became ill. When seen after three months' illness, the upper part of the right lung down to the second rib presented dulness to percussion and crackling moist sounds.

After four and a half months' illness he had a pyrexial attack, during which he was attended by Mr. A. L. Bright. When I saw him sixteen days after this attack, there were in the upper part of the same lung cavernous breathing and flattening down to the third rib. The opposite (left) lung, at the base, up to the angle of the scapula, presented dulness and moist râles. This pneumonic condition at the base afterwards cleared off. At six months an ischio-rectal abscess occurred, and the patient was seen by Dr. Brookfield, of Brondesbury, and Mr. Stocker, of Willesden. A small fistula remains.

At eleven months the scanty expectoration was examined by Mr. W. D. Severn, and found to contain tubercle bacilli. But for the pyrexial attack described, his illness has taken the course of a favorable case of pulmonary tuberculosis with absence of pyrexia, but with low morning temperature.

At twelve months he appeared to his friends quite well, and married. He is now, after twenty months, free from cough and expectoration, feels quite well, attends to business, is well nourished, and weighs 135·2 lbs., this being 3·2 lbs. more than when first weighed after three months of illness. Below the right clavicle the chest-wall is deeply retracted, and there is loud bronchial breathing with entire absence of râles.

The treatment, with a single exception, has been of an ordinary kind. Fortunately he has been able to spend most of his time at St. Leonards. The point to which I desire to draw attention is that throughout his illness he has persisted in the diligent and very copious inhalation of crude carbolic acid, employed, as an average, during one and a half hours daily. For this purpose I have used in his and other cases a very large

light respirator (shown), consisting of a hat-box, within which are secured broad bands of flannel. When saturated, the flannel holds about 6 oz. of carbolic acid. In the present case, by the patient's choice, the crude commercial kind, "Calvert's No. 5," has been used. The use of this apparatus is prescribed as strong as the pungent effect on the throat and nose will permit. Perseverance is promoted by the fact that most patients describe it as relieving cough, rendering expectoration easy, soothing the feelings, and promoting sleep. I have not in any case found noteworthy toxic effects.

XIX.—*A case of Popliteal Aneurysm followed by embolism of the posterior tibial artery and gangrene of the foot.* By R. J. H. Scott. *Exhibited April* 27, 1894.

HENRY W., æt. 33, groom, single. Has always been a healthy man. No history of syphilis. Fourteen years ago was thrown from his horse, which rolled over him, bruising his left knee and leg.

Three years afterwards noticed pulsation, pain, and a swelling of the size of a pigeon's egg under his left knee. The pain passed down his leg. He was attended by a doctor, who advised his going into St. George's Hospital.

He was under the care of Mr. Pickering Pick at St. George's Hospital, and was first treated by flexion of the knee for a few days, afterwards by pressure on the femoral artery by tourniquets for about a fortnight. As there was no improvement his femoral artery was tied in Scarpa's triangle. The tumour became much smaller, and ceased to pulsate.

About three years ago the tumour began to increase in size, and pain began under the knee and down the leg.

On January 2, 1894, whilst running to keep himself warm, he felt a sudden pain "in the calf of the left leg," which shot down into the foot. He then "dragged" himself along till he was able to get into a train; on his way home his foot and leg rapidly became cold, and he had severe pain of a gnawing character till his admission into the hospital at Bath.

On admission, January 4, it was noted that his left leg was discoloured from the toes to within three inches of his knee,

purplish at the toes, passing through various shades to *red* at upper border of discoloration. Sensation almost absent at toes, but present at ankle; not hypersensitive at calf. No pulsation could be felt in any artery below femoral at the groin. Foot cold.

February 9.—It was noted "that the line of demarcation of the gangrene of the foot was well defined," reaching from middle of metatarsal bone of little toe to internal cuneiform. The "popliteal aneurysm" has increased in size, and the patient has had intense pain in the leg running down to the foot. Is obliged to have hypodermic injection of morphia two or three times a day and night.

February 22.—Patient was placed under the influence of ether. A tourniquet was applied to the thigh, and a median incision was made over the aneurysm in the popliteal space; the sac of the aneurysm was readily exposed, with the popliteal vein lying in a collapsed state over it. The vein was injured in removing the tumour, and was therefore tied above and below. There was some slight hæmorrhage from some small veins, easily controlled.

The popliteal artery was ligatured and divided above and below the sac.

On removal of the tourniquet there was no hæmorrhage worth mentioning. The wound was closed with silkworm-gut sutures and a drainage-tube inserted; the wound was dressed antiseptically. The leg was wrapped up in cotton wool, and kept in a raised position.

The sac when removed was found to contain a pasty chocolate substance. The opening of the artery into the sac could be well demonstrated.

On February 28, six days after the operation, it was noted that the patient was having fairly good nights with less morphia. There was no swelling of the leg. The wound had been dressed twice since the operation; the temperature had been normal.

March 1.—Less pain both in foot and leg. Sphacelus of foot partially removed by scissors, healthy granulating surface underneath.

March 20.—Wound in popliteal space almost healed. The patient was put under the influence of ether and chloroform, and "Chopart's amputation" was performed on the left foot. The flaps being formed in the usual manner, and the bones disarticulated at the medio-tarsal joint, it was found that the anterior surface of the os calcis and the head of the

astragalus would press too much on the posterior flap, therefore a small portion of each was sawn off. On removing the tourniquet from the thigh the circulation returned very feebly to the flaps; only two or three very small vessels required ligaturing. When the circulation had thoroughly returned, the tendons on the anterior surface of the foot

FIG. 33.—Sac of the aneurysm with artery laid open; natural size.

were attached to the plantar flap by four catgut sutures. Two small drainage-tubes were inserted, and the flaps united with silkworm gut. The stump was dressed antiseptically.

March 22.—Two days afterwards the stump was dressed. Wound healthy; slight tension on middle sutures, which were removed.

Four days later stump was dressed and more sutures

removed. Wound looks healthy, lower flap supported with broad strapping.

April 3.—The stump looks well; some purulent discharge from the drainage-tube sinuses, pieces of sloughing tendons syringed out. Wound under knee healed; leg now quite straight.

April 8.—Patient gets up and walks with the aid of crutches.

April 19.—Patient has good power of flexion at the knee. No pain, appetite good, increasing in weight. There are two sinuses leading down to some bare bone on front of the astragalus. He can bear a fair amount of pressure on the stump.

Patient's temperature has not been above 100° since the amputation.

XX.—*Tubercular Disease of the Palmar Synovial Membranes: excision: recovery with perfect movement.* By A. Pearce Gould, M.S. *Exhibited October* 27, 1893.

THE patient, a man twenty-six years of age, was discharged from the army at the end of 1892 on account of palmar ganglion of the right hand. This had originated, apparently, from a sprain received in tightening up his saddle-girth; this sprain was quickly followed by swelling, which had resisted treatment by rest and counter-irritation.

On admission to Middlesex Hospital on January 9, 1893, a soft fluctuating swelling was found above the wrist and in the palm of the hand in the region of the common flexor tendinous synovial sheath.

On January 11 Mr. Gould operated, and dissected away the pulpy synovial membrane in its whole extent; for this the anterior annular ligament was divided. Primary union was obtained, and he left the hospital in a week. At the end of September, however, he was again admitted to the hospital, as the disease had recurred in the outer palmar synovial membrane in its whole length. He was again submitted to operation, and all the diseased tissues were excised. Primary union was obtained. The man has perfect movement in his wrist, thumb, and fingers.

XXI.—*Bony Ankylosis of Temporo-maxillary Joint with very imperfect development of lower jaw.* By W. ARBUTHNOT LANE, M.S. *Exhibited November* 24, 1893.

E. H., æt. 13 years, was admitted under my care into Guy's Hospital in September, 1893. When eighteen months old she was stung on the left upper eyelid. Much inflammation of adjacent parts followed, with free suppuration, some of the skin of the lid with the subjacent orbicularis coming away in the slough. Shortly after this it was noticed that the child was unable to open her mouth.

On admission the face was much deformed by the fact of the lower jaw being very ill-developed. It was immoveable on

FIG. 34.—Arrest of development of lower jaw.

the upper, and the incisor teeth, which were the only teeth of the lower jaw which did not come into apposition with those of the upper, were very long, being considerably above the level of the others. They projected into the roof of the mouth, coming into contact with its mucous membrane. She was unable to close the left eye owing to imperfect action

of the orbicularis, and there was a large scar in the upper lid externally.

Chloroform was administered on September 19, when it was found necessary to open the trachea at once. After considerable difficulty the upper part of the ramus of the jaw with the portion of the temporal bone continuous with it was removed. There was no indication of the presence of the original joint. However, even when much bone was removed, owing apparently to the angle of the jaw coming into contact with the spine, it was found impossible to obtain a greater interval than half an inch between the margins of the incisor teeth and the portion of the roof of the mouth on which they rested when the mouth was closed. The child was put on chewing gum, and an excellent joint was developed. Mr. Maggs, who was much interested in the case, stopped some of her incisor teeth and removed others.

On January 19, 1894, I divided the jaw between the right canine and incisor teeth, and by depressing the outer fragment and rotating it somewhat I brought the summits of the incisor teeth to the level of the others, and directed them a little forwards. The fragments were retained in this position by means of silver wire which perforated the bone. On this occasion it was again necessary to open the trachea.

Much benefit was obtained from this operation, since on opening her mouth she was able to obtain an interval of about an inch between the incisor teeth and the roof of the mouth, and could eat with much satisfaction. Under the influence of muscular action the lower jaw has developed considerably. This, combined with the diminished forward projection of the upper incisors, has resulted in a considerable improvement in her personal appearance.

XXII.—*Empyema of Maxillary Sinus, illustrating the value of Heryng's method of transillumination.* By C. A. Ballance, M.S. *Exhibited November* 24, 1893.

THE man was a patient of Dr. Green, of Edmonton, and was twenty-seven years of age.

He had suffered for one year from discharge from the left nostril, and from a very offensive odour which he was conscious

DESCRIPTION OF PLATE VII,

To illustrate Mr. Ballance's case of Empyema of the Antrum of Highmore.

The patient was taken into an absolutely dark room, the electric lamp placed in his mouth, the lips closed over the handle, and then the button was pressed which allowed the current to reach the lamp.

The appearances then presented were drawn in colour by Mr. Lapidge, and his drawing has been reproduced on the opposite page.

The outlines of the upper part of the head and of the upper margins of the orbits are just visible. There is a brilliant illumination of the cheeks and the red margin of the lips; the light also defines the lower margin of the nose. The handle of the incandescent lamp passing into the mouth between the closed lips is faintly visible. Near the root of the nose there is a bright bar of light. The lower margin of the right orbit is brilliantly illuminated, whilst there is absolute darkness of the corresponding region of the opposite side, indicating the presence of an opaque fluid or solid substance in the left maxillary sinus.

M. H. Lapidge del.

Chromolitho. & Co. Bromley-Kent.

of when those around him were not able to perceive any smell.

On examination nothing was seen in the left nasal cavity, but on making him put his head for a few seconds between his knees, and then examining the nose again immediately, pus was visible in small quantity occupying the concavity of the middle turbinate bone, and those around became conscious of the presence of a horrible smell. The diagnosis was clenched by Heryng's method of transillumination—a dark shadow being evident over the affected antrum, and no light passing upwards and illuminating the lower border of the left orbit, as it did on the other side (see plate).

The antrum was not enlarged, there was no tenderness on pressure or percussion over the palate, cheek, or malar bone. The alveolar process and teeth were apparently healthy. There had been no infra-orbital pain or any other classical symptom.

The operation proposed was the opening of the front wall of the antrum, cleansing it, and stuffing it with iodoform gauze. This appears to be better than the intra-nasal operation, and as the teeth are healthy it would seem unwise to interfere with them or the alveolar process.

NOTE.—At the operation the antrum was found full of very offensive pus. Six weeks later the patient was quite well, and there was no difference to be detected in the transillumination of the right and left sides of the face, the dark shadow over the left antrum having disappeared.

XXIII.—*Epithelioma of Tongue and Jaw: removal of Symphysis Menti and insertion of silver wire spanner.* By STANLEY BOYD. *Exhibited October* 28, 1893.

THE specimen is shown to bring forward a method by which the form of the lower jaw may be preserved after resection of a piece.

In the present case, not only was 2 inches of the symphysis menti removed, but also the anterior half of the tongue and the floor of the mouth between the frænum and

the jaw. The fragments of the jaw were kept at their normal distance apart by a suitably bent spanner of thick silver wire, the ends of which were inserted into holes drilled in the sawn surfaces of the fragments. The wire was kept in place by suture over it of the skin flaps which had been reflected to allow of the removal of the jaw. On the deep aspect the wire was almost wholly exposed in the cavity of the mouth. Within a month it has become completely encased in dense fibrous tissue. The mouth can be opened fully, and the wire moves in one piece with the two sides of the jaw. The chin is normally prominent. Owing to the loss of the floor of the mouth and anterior half of the tongue, the lower lip has been drawn back by scar contraction, and so far it has not been found possible to fit a denture. Mr. J. F. Colyer, however, still hopes to succeed.

Clinically the case was interesting as a very marked example of leukoplakia in a woman, and as an example of two distinct epitheliomata, one on the right side of the dorsum of the anterior half of the tongue, the other of the frænal region (due probably to the irritation of a denture) involving the jaw.

XXIV.—*Dentigerous Cyst with Tooth* in situ. By Storer Bennett. *Exhibited February* 23, 1894.

THE patient, a compositor æt. 25, states that some months ago a swelling occurred in the front of his right upper maxilla. This burst, giving exit to a very foul discharge, which continued until he was seen by me three weeks ago.

A short time before coming under observation "a small tooth with a short root" was extracted from the space which now exists between the right upper permanent central incisor and the right upper canine. This extracted tooth was probably the temporary canine of that side retained beyond its normal period.

The patient came to the Dental Hospital of London with a swelling over the region of the right upper central incisor; this was incised and the opening dilated, when a large cyst cavity was displayed, containing a tooth resembling a lateral

incisor. The tooth was situated on the floor of the cyst, with its crown directed upwards and to the left side,—in fact, exactly inverted. The tooth was found to be slightly loose, and to have but a very short root.

The case was exhibited to the Society by means of a small electric light projected into the cyst cavity.

XXV.—*Wiring for Compound Fracture of the Pelvis.* By WILLIAM HENRY BATTLE. *Exhibited February* 23, 1894.

A GIRL æt. 2½ was admitted to the Royal Free Hospital in August, 1893, suffering severely from shock, and with a history of having been run over in the street by a crowded excursion van. There was a fracture of the left side of the pelvis through the transverse and ascending rami of the pubes close to the symphysis, and a separation of the sacro-iliac synchondrosis behind. There was a lacerated wound of the vagina communicating with the fracture. When the child was lying down the separation in front was about 1½ inches, and much pain was caused by movement. Through an incision made in the inguinal region a single wire was passed through the fractured ends and held them well together. A drainage-tube was passed through from the wound to the entrance of the vagina. The result as shown now, and experienced during the time the child was in hospital, was extremely good. There was a rise of temperature on the second day, but it rapidly subsided, and the wound ran an aseptic course. The patient runs about and walks normally. There is a slight swelling over the position of the wire.

XXVI.—*Patient after Excision of Acromial End of Clavicle.* By J. Bland Sutton. *Exhibited February 23, 1894.*

THE description of the case is given in *Clin. Soc. Trans.*, vol. xxiv, p. 12. The outer two thirds of the right clavicle was excised in June, 1890, for myeloid sarcoma of its acromial end. The clavicle is joined to the acromion by a band of stout fibrous tissue. The patient has full use of the right arm, and can move it in all directions. She is in the best of health.

XXVII.—*Patient after Operation for Central Cyst of Femur.* By William Henry Battle. *Exhibited November 24, 1893.*

A GIRL æt. 14, who was admitted to St. Thomas's Hospital on the 7th of May of this year, complaining of inability to walk on account of pain in the right knee. She had first noticed swelling about the right knee in the September of previous year. There had been pain, worse at night, since Christmas. There had been no difficulty in walking until two months before admission, and then she was obliged to give up on account of the pain caused by movement.

On admission she had a swelling of the lower end of the femur, bulging to the inner side of the joint, where there was well-marked fluctuation, and such excessive tenderness that full examination could not be carried out. For two evenings there was a temperature of 100°, but without any œdema of the parts over the knee or effusion in the joint. Incision made on the 20th over this fluctuating point showed a thin layer of bone, the thickness of paper, forming the wall of a simple cyst containing many ounces of fluid of a thin character. The interior of the cavity left, which occupied the whole of the lower end of the femur and interior of the condyles, was not lined by membrane, but was apparently compressed bone, which presented irregular lines (like groining) in many parts. The forefinger could not reach the upper part of the cavity,

so an incision was made on the outer side and the bone trephined. Through this opening, which entered the medulla, and from the inner opening the cavity was scraped out, but only about a teaspoonful of solid material came away. Chloride of zinc (40 gr. to ℥j) was used to wash out the cavity, and perchloride dressings applied. A drainage-tube was passed across the limb from opening to opening, and the limb was placed on a splint.

The present condition is most satisfactory; she is able to run about, and although there is considerable "thickening" of the lower end of the femur, there is no reason to suspect new growth as forming part of it.

I think the cyst may have originated in sarcomatous growth.

Some years ago I amputated the patient's left foot for displaced talipes varus with cicatricial contraction.

XXVIII.—*Rupture of anterior Crucial Ligament and of anterior end of External Semilunar Cartilage.* By Stanley Boyd. *Exhibited February* 23, 1894.

W. R., æt. 24, when playing football three years ago was knocked down on to his right side, his left leg crossing his right leg so that the left knee was unsupported; another player fell on him, driving his left knee inwards towards the ground. He heard a crack and felt severe pain; he got up, and with assistance was able to hobble 100 yards. The joint swelled, and it was eight to ten weeks before he could use it, then he soon became able to walk and run as well as ever; but the joint was insecure, and capable of abnormal movement. By care he was able to prevent its giving way often; thus he would not alight from even a small height on his left foot, he would not throw a stone on account of the twist of the left leg, he would avoid irregular surfaces, &c.; nevertheless the joint did give way badly three or four times, causing him to lie up. Minor slips, though painful at the time, cause no swelling, and the joint can be used at once or soon. During the past year his walking power has seriously diminished owing to "weakness" of the left knee. Six weeks ago he twisted the knee badly, and was

laid up for a fortnight. Since then a walk of a mile or two tries the limb greatly. Also on several occasions the joint has become locked in the semi-flexed position, extension being impossible until something in the interval between the outer joint-surfaces had slipped into place; this was brought about by pressure on either side of the lig. patellæ or by full flexion. No loose body has been felt.

The patient when standing or sitting can move the tibia backwards and forwards beneath the femur,—forwards until the point of a thumb can be placed well on each femoral surface of the tibia, backwards to the normal position. When standing he can separate the tibia and femur in the forward and inward direction to a considerable extent; the tibia goes back without pain, but with a loud click and a jerk of one bone over the other. When the latter displacement is produced most of the internal lateral ligament can be felt.

In the production of the forward movement the quadriceps does not seem to act, but something can be felt contracting in the popliteal region—popliteus? The backward movement is due to the hamstrings. The internal semilunar cartilage can sometimes be felt in its proper position; nothing can be clearly felt of the external, but it probably does not come forward with the tibia.

The diagnosis which appears most probable is that the anterior crucial ligament has been torn from its attachment to the tibia, and that in the last severe wrench the external semilunar fibro-cartilage was detached anteriorly.

XXIX.—*A case of Subluxation of Knee-joints in a female child of one year and four months.* By H. Betham Robinson. *Exhibited April* 27, 1894.

THE child had bronchitis at Christmas, and afterwards seemed very weak on her legs. The mother then noticed a click in its knee-joints when it moved its legs.

On watching the child the tibia and fibula are seen to be displaced outwards and forwards, so that the inner tuberosity of tibia comes into the intercondylar notch and looks directly forwards. The bones then return to their normal

position with a loud snap. On manipulation there is some lateral movement to be obtained.

The child appears very strong, although her leg muscles are rather flabby.

XXX.—*Recurring Dislocation of Hip: operation.* By WILLIAM HENRY BATTLE. *Exhibited February* 23, 1894.

THE girl, æt. 19, was admitted to St. Thomas's Hospital on 27th May, 1893, with a dorsal dislocation of the right hip.

There was said to have been something wrong with the right hip for eight years, but the nature of this was not known; she had been lame. On the 22nd she had fallen (slipped off the kerb), and had been in bed and unable to move about, with pain in the hip since that time. There was a dorsal dislocation, apparently of recent origin, which Mr. Anderson reduced by manipulation under anæsthesia on June 3. The splint was removed on the 28th, and the dislocation recurred. On July 1 it was again reduced, but was found displaced again on the following day. On the 7th the temperature was 102·2°, and she had pain in the hip. An incision was made by Langenbeck's method, and the head of the bone reduced after the incision had been carried through the cartilage investing the rim of the pelvis. The capsule was very large, and distended with blood-stained synovial fluid. The hip was placed in the extended position, and three ivory pegs passed through the head and acetabulum in a triangle ∴. Incision closed with silk sutures and without drainage-tube. Long outside splint, plaster of Paris and usual dressing applied. When she left hospital some three months later she was supplied with a leather hip-splint, and wore it for three or four months.

The result of this treatment is that she can walk well, but with a slight limp (this is not apparently the result of the operation, but the old-standing lameness), and can flex the thigh to a right angle. She says that she cannot run, but has apparently not tried to do so. There has been no dislocation since.

XXXI.—*A case of old Fracture of the Fibula with Displacement of the Foot (Dupuytren's fracture), replaced by operation two years later.* By WATSON CHEYNE, F.R.S. *Exhibited November* 24, 1893.

G. W., æt. 49, was admitted to King's College Hospital April 22, 1892: he met with an accident to his left foot about two years before. He was then treated with external and internal splints, and afterwards plaster of Paris. Has

FIG. 35.

never been able to walk since, and attempts to do so are very painful.

On examination there is marked broadening of the ankle, and the whole foot appears displaced outwards, without, however, any marked eversion (see Fig. 35). The lower end of the tibia is very prominent on the inner side, and it is evident that the internal malleolus has been broken off and

carried outwards with the foot. The line of fracture of the fibula is distinctly felt about 3 inches above the external malleolus. The patient complains of pain on putting his foot down, which is most at the outer side of the ankle and extends up the leg to the knee.

On April 26 an operation was performed with the view of replacing the foot in its proper position. All the usual antiseptic precautions having been taken and an Esmarch's bandage applied, vertical incisions about 6 inches in length were carried downwards in front of each malleolus, the centre of the incisions being opposite the ankle-joint; these incisions were carried down to the bone and the joint, and the tendons, &c., in front of the ankle were lifted forward along with the skin between the incisions, so that the fingers could be passed freely from one to the other. The line of fracture of the fibula was then exposed and divided, and it was found that the fracture had been transverse, and that the upper end of the lower fragment had passed outwards, so that there was only a thin line of bony union between the inner edge of the lower fragment and the outer edge of the upper, the malleolus not having quite cleared the upper fragment. On the inner side it was found that the internal malleolus had been broken transversely near its base and carried outwards with the foot, and lay with its outer surface upwards against the inner part of the articular surface of the tibia, to which it was firmly attached by fibrous adhesions, and, in parts where the cartilage had disappeared, by bone. This was removed so as to restore the form of the articular surface of the ankle, but it was still found impossible to push the foot into place. Further investigation showed that the outer part of the articular surface of the astragalus projected upwards in the space between the tibia and fibula, and that this was the obstacle to the replacement of the foot. This part of the astragalus was therefore chiselled away till it was on a level with the inner and upper surface, and then by pressing the foot inwards the astragalus passed into its proper position, and the form of the foot was restored. The result as regards the joint was that at the inner part a cartilage-covered portion of the astragalus was opposed to a partially bony surface of the tibia, while further out the condition was reversed, the bony surface of the astragalus being opposed to the cartilage-covered surface of the tibia. The foot being held in position the two ends of the fibula were wired with silver wire, and the wounds stitched up. After the usual antiseptic dressings were

applied the leg was placed in a trough of Gooch's splint, care being taken to fix the foot at right angles and slightly inverted.

There was nothing remarkable about the after progress. The usual aseptic course was followed, the wound healing by

FIG. 36.

first intention. Passive movement of the ankle was kept up after the first week.

When exhibited to the Society the position of the foot was perfect (see Fig. 36), he was able to walk quite well, and there was a considerable amount of movement in the joint.

XXXII.—*A case of External Rotation of both Legs.* By Watson Cheyne, F.R.S. *Exhibited November 24, 1893.*

H. P., æt. 3, admitted to King's College Hospital on October 14, 1892. The child has never been able to walk or even to stand, but the deformity was not noticed till the parents tried to teach it to stand. No illnesses.

Child is quite unable to stand or walk, both legs turning outwards and bending at the knee-joints. No signs of rickets nor of previous infantile paralysis; the muscle reactions are normal. On examination of the legs they seem

Fig. 37.

quite normal, with the exception that both are rotated outwards, and it is impossible to rotate them inwards or even to get the patella to look directly forwards; on the other hand, they can be turned outwards to a very marked degree. Some idea of the great freedom of rotation outwards will be given by the accompanying photographs (Figs. 37, 38, 39). There is no congenital dislocation at the hip-joint, but the head of the femur can, I think, be more easily felt than it ought to be, the acetabulum being probably imperfectly developed.

For about three months attempts were made to improve matters by massage, Faradism, apparatus, &c., but without

FIG. 38.

FIG. 39.

success, and consequently, after considering various operative procedures, I finally decided on the following, which was performed on the right side on January 23, 1893. A vertical incision about 3 inches long was made on the outer side of the thigh at the upper part, and carried down to the bone through

FIG. 40.

the external vastus. The periosteum having been raised by an elevator a narrow saw was passed in, and the femur divided transversely just below the lesser trochanter. The lower part of the thigh was then forcibly rotated inwards, till the patella pointed as far inwards as normal. A perforated aluminium

plate was then fitted over the adjacent parts of the divided bone, and fixed on by means of a number of nickelled tacks. (When this was done, the acquired internal rotation of the foot and leg was retained, and when rotation outwards at the hip-joint was carried out the leg only moved through the normal arc.) The wound was then stitched, gauze dressings applied, and the leg and pelvis enveloped in plaster of Paris, the limb being flexed considerably at the hip-joint.

On March 8 the plaster was removed; the wound was found healed and the bones firm. The splint was left off and massage commenced. By the end of March the child was allowed to get up, and was able to stand. He was discharged at the end of April.

When exhibited at the Society the right leg was in normal position, but the left leg was of course in its former condition. The child could, however, walk and run about quite well, and the parents were so satisfied with the result that they thought that the operation on the left leg was unnecessary. The accompanying photograph (Fig. 40), taken this autumn, shows the result fairly well.

XXXIII.—*Displaced Carpal Bone.* By William Henry Battle. *Exhibited November* 24, 1893.

MAN æt. 25, who in 1888 fell on deck and received injuries of considerable severity—fractures of the right femur, of the left humerus, of the elbow-joint, and of the right os calcis, and a wound of the lower part of the left forearm and wrist, during the healing of which several pieces of bone came away.

Now, there is a rounded swelling of stony hardness under the scar of the wound on the front of the left wrist, which is fixed to the deep fascia and so immoveable. The skin moves over it. The left carpus is shorter than the right, measuring only one finger's breadth against two on the right side, but the movements are very good. The os calcis is pointed posteriorly, and a bony projection has developed there, from which a piece separated about six months ago.

I am of opinion that the bony swelling is one of the displaced carpal bones, probably the semilunar.

XXXIV.—*Excision of Elbow by lateral incision, the olecranon being preserved.* By F. Eve. *Exhibited January* 26, 1894.

ELIZABETH W., æt. 32, was admitted to the London Hospital on April 6, 1893, with tuberculous disease of the right elbow-joint of six years' duration. The joint was fixed and the synovial membrane much swollen.

April 6.—Operation: the joint was opened by two lateral incisions to avoid interference with the triceps tendon and olecranon. The diseased synovial membrane was removed, and the articular ends of the humerus and radius were excised in the usual way. The greater sigmoid cavity was occupied by an old tubercular focus. This was scraped away; the surrounding bone was eburnated, but healthy. The olecranon was otherwise left intact.

April 26.—Wounds soundly healed. After continuous passive movement of joint with Faradisation and massage of the extremity, the patient was discharged on June 8. She could then flex the arm to an angle of about 45°, and the movements of extension, pronation, and supination were nearly perfect.

She was instructed to come to the hospital weekly for "passive movement" of the joint, but was not again seen until January, 1894, when the power of flexing the forearm, owing to neglect of her instructions, had become slightly restricted.

Remarks.—The modification of the operation of excision, consisting in the preservation of the olecranon, was undertaken to avoid the loss of power of extension sometimes following the usual operation, and due to the triceps failing to contract a firm attachment to the extremity of the ulna.

Although the above was not a favorable case for the experiment, since the greater sigmoid cavity appeared to be the primary seat of the disease, yet the result as regards extension is almost ideal.

I have in several instances previously endeavoured to obtain the same result by dividing the olecranon transversely after making the ordinary posterior incision. After completing the operation in the usual manner the olecranon was then wired to the ulna.

In one case, that of a man aged thirty-two, a fair

mobility was obtained by this method; but in three other cases, two of excision and one of arthrectomy respectively, the results were very unsatisfactory. This appeared to be due to the necessity of postponing "passive movement" until the union between the olecranon and ulna had become sufficiently firm. In the meantime fibrous union had taken place between the lower end of the humerus and the line of section through the olecranon; this was a serious bar to movement. This disadvantage does not exist when the olecranon is completely preserved and the joint opened by lateral incisions.

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